

PROCEEDINGS

of the

American Society

of

Civil Engineers

VOL. L

AUGUST, 1924

No. 6

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Detroit Public Library

Secretary Dunlap Injured in Train Wreck

Secretary Dunlap was seriously injured in a train collision near Buda, Ill., on June 30, 1924, while returning to Headquarters from the Pasadena Convention, after attending a meeting of the Board of Investigation and Co-ordination of the Society for the Promotion of Engineering Education at Boulder, Colo., of which Board he is a member.

About 4:30 A. M., on June 30, a fast mail train collided with the rear of the train on which Secretary Dunlap was riding, six people being killed outright, including President F. W. McNair of the Michigan College of Mines; later, Professor F. W. Ives of Ohio State University, President of the Society of Agricultural Engineers, succumbed to his injuries.

Fortunately, Lincoln Bush, Vice-President, Am. Soc. C. E., and C. J. Tilden, M. Am. Soc. C. E., who were on the train, escaped injuries and assisted in taking care of Mr. Dunlap; Col. Bush stayed several days to see that he had the best of medical attention.

Secretary Dunlap was taken to the Presbyterian Hospital, Chicago, Ill.; examination later disclosed fractures of the fifth and sixth cervical vertebrae resulting in paralysis of the body below the chest. Past-President Loweth and Director Condron have given unremitting care in following the case. Besides, Dr. Lewis of the Presbyterian Hospital, Dr. Bevan, of Chicago, and Dr. Prentiss, of Iowa City, have been called in consultation. Latest advices (July 22) are to the effect that his dangerously high temperature continues and that the physicians feel he is fighting against odds for his recovery.

Pasadena Convention

Reports from this year's Society Convention at Pasadena, Calif., June 18-21, indicate that the early promises of a successful meeting were fully realized. The total registration reached nearly 500 and the maximum attendance, at the session of the "Colorado River Problem", considerably exceeded this figure.

After Professor Franklin Thomas, President of the Los Angeles Section, had called the first session to order on Wednesday, June 18, the Convention was welcomed to Pasadena by C. W. Koiner, City Manager. Following his response to this welcome, President Grunsky delivered his Annual Address, printed among the papers of this issue of *Proceedings*, in which he reviewed the engineering history of California. At the Business Meeting which followed, announcement was made of the generous gift of \$25 000 to the Society from John R. Freeman, Past-President, Am. Soc. C. E., for the encouragement of engineering research, particularly in the field of hydraulics, and for the publishing of engineering documents which might otherwise be neglected. This news was received enthusiastically. The sight-seeing excursion around the city and the trip to Mt. Lowe were both popular, being attended by about 130 and 150, respectively.

The morning of Thursday, devoted to the Colorado River Problem, developed the banner attendance and interest of the Convention. The pictures, the main paper, and the discussions were timely and well received.

In the afternoon, the Sanitary Engineering, Power, Highway, City Planning, and Irrigation Divisions held independent meetings with a total attendance of almost 300. After the meetings, the afternoon and evening were spent in an excursion to the Ince Studios at Culver City by automobile. The inspection of the studios, the dinner, and the entertainment were enjoyed by about 380 members and guests.

Friday was devoted to a delightful trip to Santa Catalina Island, and to supper at the California Yacht Club, with an attendance of about 160 at each. Saturday likewise was spent in sociabilities, including a motor trip to San Diego chosen by about 40 delegates and friends, an excursion around Los Angeles, for a party of about 75, and a garden party given by Mr. and Mrs. W. A. Brackenridge attended by about 150.

These events formed a fitting close to the Fifty-Fourth Annual Convention of the Society.

Meeting of the Board of Direction

This is an abstract of the notes of the Secretary and subject to approval by the Board of Direction at its next meeting.

The regular meeting of the Board of Direction was held at the Maryland Hotel, Pasadena, Calif., on Monday and Tuesday, June 16 and 17, 1924, the following being in attendance: C. E. Grunsky, President; John H. Dunlap, Secretary; and, also, Messrs. Bowen, Brown, Bush, Chester, Davis, Dyer, Farnham, Fenkell, Holland, Holmes, Howe, Huber, Loweth, Marston, Merri-man, Paul, Ridgway, and Yates.

John R. Freeman Fund:

A telegram was received from John R. Freeman, Past-President, Am. Soc. C. E., presenting \$25 000 to the Society, the income from this fund to be used to aid and encourage young engineers and the underwriting of the cost of publishing and translating books or papers on hydraulics. The text of Mr. Freeman's message notifying the Board of his gift, is as follows:

"Providence, R. I., June 16, 1924.

"PRESENT DIRECTORS OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS

Care John H. Dunlap
Hotel Huntington, Pasadena, Calif.

"I would find pleasure in intrusting to the American Society of Civil Engineers securities having a value of approximately twenty-five thousand dollars for the purpose stated below (am making similar tender to American Society of Mechanical Engineers and Boston Society Civil Engineers).

"I am deeply appreciative of the friendships and encouragements found in more than forty years of membership in these engineering societies and appreciate in later more than in earlier years the truth Lord Bacon stated 'Each man is debtor to his profession'. It seems fitting that when one's profession has given lifelong happiness and a competence he give token of appreciation of his indebtedness to those who have gone before and give friendly encouragement to those coming along. My specifications are that the income be used in

aid and encouragement of young engineers in experiments, observations, or research for purpose of securing new and accurate data relative to engineering, such investigations to be described in a report to said society, or for underwriting wholly, or in part, cost or pecuniary loss in publication of meritorious books or papers pertaining to hydraulic science or art; or assisting in translation or publication in English of papers or books in foreign languages pertaining to hydraulics, or that such portion of said income as the Board of Direction may from time to time deem proper be devoted to providing a yearly prize for what is deemed most useful paper contributed to the said Society during the calendar year relative to science or arts of hydraulic construction no award to be made unless a paper deemed worthy of such special recognition shall have been presented, preference being given to the work of students Juniors or members under forty years of age. Also I desire that from the income of this fund there be established a triennial traveling scholarship in Engineering alternating with similar scholarships in Mechanicals and Boston Societies open to Juniors or Associate Members under forty-five years of age in recognition of achievement or promise for studying engineering works in the United States or in any part of the world where there is good prospect of obtaining information useful to engineers report to be made to society.

"I am wiring this hoping preliminaries may be worked out at present meeting regret my absence I would enjoy serving for a time on committee of administration of this Freeman Fund thus getting ahead of my executors. Doctor says I am good for fifteen years barring accidents."

"JOHN R. FREEMAN"

This gift was received and the following telegram was sent to Mr. Freeman containing resolutions of appreciation and acknowledgment:

"June 17, 1924, Pasadena, Calif."

"JOHN R. FREEMAN

815 Grosvenor Bldg.

Providence, R. I.

"The Board of Direction at its meeting this morning unanimously adopted the following resolution:

"Whereas, The Board of Direction of the American Society of Civil Engineers assembled at Pasadena, California, on June 17, 1924, has been advised by Past-President John R. Freeman, one of its honored and beloved members, that he will intrust to the Society a fund of twenty-five thousand dollars for the purpose of encouraging engineering investigation with a view of giving special recognition and encouragement to the young engineer; now, therefore, be it

"Resolved: That the Board of Direction of the American Society of Civil Engineers does on behalf of the Society and in the name of the Engineering Profession accept the trust which has been so generously offered and which will be known as the Freeman Fund. In accepting this trust the Board of Direction desires to express to Mr. Freeman its whole-hearted appreciation of his splendid and magnanimous donation and desires even more particularly to record the indebtedness under which the entire Engineering Profession finds itself to the donor of this fund. His characteristic feeling and sympathetic regard for the young engineer is shown so clearly that it will serve as an inspiration for generations to come and be as a guiding star for the youth of the future.

"And it is the earnest and sincere hope of each member of the Board that Mr. Freeman will long live to see the definite results and advantages which will flow from his great benefaction.

"JOHN H. DUNLAP,

"Secretary."

President Grunsky was authorized to appoint a Committee of three to consult with Mr. Freeman and report back to the Board on a plan for the administration of this fund.

Rules of Order for Local Sections Conference:

The Rules of Order for the Local Sections Conference, as published in the May, 1924, *Proceedings*, were amended and the following resolutions were adopted and ordered printed:

"Resolved: It is the sense of the Board of Direction that, in re-affirming the Rules of Order for Local Sections Conference adopted by the Board at its meeting on April 8, 1924, with the slight modifications as the following revised code of rules shows, it will lend dignity and standing not otherwise attainable to the Annual Conference of Local Sections by having the President of the Society preside at the Conference; that it will foster a better understanding of the membership at large in the business affairs of the Society; and that by having only one Conference a year, and that concurrently with the Annual Convention, which is held at a different place each succeeding year, more interest and benefit will accrue to the Local Sections in furthering the aims and purposes of the Society."

Following the adoption of the revised "Rules of Order", it was also decided that:

"The Secretary is hereby requested by the Committee on Local Sections to furnish at once the President and Secretary of each Local Section with a copy of the Rules of Order for Conferences of Local Sections, together with the resolution of this Board adopted this date, and to request each Section to appoint without delay its sub-committee.

"The next Conference of Representatives of Local Sections will be held at the time of the Annual Convention at Cincinnati in the Spring of 1925, and to insure its success it is necessary that work on the program be begun at once by these committees so that a plan of the meeting may be formulated by or before the next meeting of the Society which will be held at Detroit in October next.

"This Conference will consist of an afternoon, dinner and evening meeting beginning Tuesday afternoon, April 21, 1925, the day preceding the opening day of the Convention. This will avoid all conflicts with other sessions, since the Board of Direction will adjourn its sessions Tuesday noon."

The revised Rules of Order are as follows:

RULES OF ORDER FOR LOCAL SECTIONS CONFERENCE

(Adopted at meeting of Board of Direction June 17, 1924)

NAME

1.—The name of this Conference shall be The Local Sections Conference.

OBJECT

2.—The object of the Conference shall be the exchange of views regarding Society activities, and the establishment of contact between the Sections and the Board of Direction.

AUTHORITY

3.—The action of this Conference shall be of a recommendatory character and not binding on the individual Local Sections, or the Board of Direction.

SUB-COMMITTEES

4.—Each Local Section is invited to appoint a sub-committee of the Board's Standing Committee on Local Sections to be composed of three Corporate Members. These sub-committees shall serve as liaison committees between the Sections and the Standing Committee on Local Sections of the Board of Direction.

MEETINGS

5.—

(a).—This Conference shall hold one meeting each year concurrent with the Annual Convention of the Society.

(b).—The Standing Committee on Local Sections of the Board of Direction shall prepare the program for the Conference. Opportunity shall be provided so far as time may permit for the discussion of business brought up by those present at the Conference.

(c).—At least sixty days before the Annual Conference, each sub-committee shall report through the office of the Secretary of the Society to the Chairman of the Standing Committee on Local Sections on the following matters:

(1) The outstanding features of last year's program of the Local Section.

(2) The plans for the coming year.

(3) Topics for discussion at the Annual Conference.

(d).—The Board of Direction and the Chairmen of the Technical Divisions will be expected to attend the Conference. The Chairmen of Standing Committees of the Board and the Technical Divisions will be expected to describe their work, every effort being made to acquaint the representatives of the Local Sections with the activities of the Society.

REPRESENTATION

6.—All sessions of the Conference shall be open to any member of the Society, the only restriction being that voting shall be limited to those who have been regularly appointed as representatives of Local Sections, each Section being entitled to only one vote.

OFFICERS

7.—

(a).—The Officers of the Conference shall be a Chairman, a Vice-Chairman, and a Secretary.

(b).—The President of the Society shall serve as Chairman, and shall preside at its meetings.

(c).—The Vice-Chairman shall act in the absence of the Chairman. The Vice-President shall serve as Vice-Chairman; the Vice-President from Zone No. 1 shall serve during 1924, from Zone No. 2 during 1925, and so on, in order.

(d).—The Secretary of the Society shall perform the customary secretarial duties.

EXPENSES OF REPRESENTATIVES

8.—Traveling expenses of representatives shall not be paid by the Society.

RULES OF ORDER

9.—The deliberation of the Conference shall be governed by "Robert's Rules of Order."

Report of the Public Relations Committee:

The report of the Public Relations Committee presented at the meeting of the Board of Direction* on April 8, 1924, at Atlanta, Ga., was discussed, and the Secretary reported that he had complied with the motion adopted by the Board and had transmitted the report to the Secretary of War, General Beach, Colonel Sherrill, and the members of the Congressional Committee on the Reorganization of Executive Departments, but that no replies had yet been received.

Accordingly, the Board of Direction authorized publication in *August Proceedings* of the following letter, which had been sent to the Hon. John W. Weeks, Secretary of War; Maj. Gen. Lansing H. Beach, Chief of Engineers, U. S. A.; Col. C. O. Sherrill, Corps of Engineers, U. S. A.; and to the members of the Congressional Committee on Reorganization of Executive Departments, Messrs. Walter F. Brown, Reed Smoot, James W. Wadsworth, Jr., Carl E. Mapes, Henry W. Temple, and R. Walton Moore, together with the report of the Public Relations Committee that was presented at the Atlanta Meeting:

"April 17, 1924
 "DEAR SIR.—At the meeting of the Board of Direction held on April 8, 1924, the following action was taken:

"Moved, that the report of the Committee on Public Relations, of this Board relating to the testimony of General Beach and Colonel Sherrill of the Corps of Engineers, U. S. A., given at the hearings recently held by the Congressional Committee on the Reorganization of Executive Departments, be received and placed on file and that copies thereof be transmitted by the Secretary to the Secretary of War, General Beach and Colonel Sherrill, and also to the members of the Congressional Committee on the Reorganization of Executive Departments."

"In accordance with the instructions of the Board I am enclosing a copy of this Report herewith.

"Yours respectfully,

"JOHN H. DUNLAP,
 "Secretary."

"REPORT OF PUBLIC RELATIONS COMMITTEE, APRIL 8, 1924"

"BOARD OF DIRECTION,
 American Society of Civil Engineers

"Your Committee on Public Relations has carefully reviewed the testimony of General Beach and Col. Sherrill given on Jan. 31st, 1924, in a Hearing before the Joint Congressional Committee on the Reorganization of the Administrative Branches of the Government (Reorganization of Executive Departments, Hearing before Joint Committee on the Reorganization of the Administrative Branches of the Government, 68th Congress 1st Session on S. J. Res., 282—67th Congress January 7 to 31, 1924), and has noted the substance of certain statements therein which cast reflections on the character and actions of engineers, architects, auditors, contractors, manufacturers and business men of our country. The Committee calls your attention to the following abstracts from the record:

* See *Proceedings, Am. Soc. C. E.*, May, 1924, p. 403, for Resolutions adopted by the Board regarding this matter.

"GENERAL BEACH.—I might just add that fully as much work was done of a similar character in France by the Army during the war without a single cost-plus percentage contract, and this work was done in France under the Corps of Engineers.' (Page 698.)

"GENERAL BEACH.—They [Chamber of Commerce of the United States] submitted arguments pro and con, and, if my recollection is correct, when the vote was taken two-thirds were opposed to the establishment of a department of public works and one-third were in favor of it.' (Page 704.)

"GENERAL BEACH.—That was the opinion of two-thirds of the Chamber of Commerce throughout the country.' (Page 704.)

"COLONEL SHERRILL.—Had such an arrangement existed previous to the late European war, it is doubtful if the Government would have been subjected to the tremendous waste and graft that was connected with the construction activities suddenly thrown upon the War Department without an adequate engineering organization in existence to handle the emergency.' (Page 743.)

"COLONEL SHERRILL.—It seems to me, therefore, that the only proposition is whether the Corps of Engineers could more advantageously operate under the War Department in that way or whether it should operate under the Interior Department, because, after all, if you throw the whole bureau into one department or the other, the net change is very slight, and I hold that the record of the Corps of Engineers has been such that Congress and the members of this committee will never find its equal anywhere in the country.' (Page 744.)

"COLONEL SHERRILL.—Take the graft and absolute loss of funds through graft to the Government of over \$80 000 000 in building camps. I feel no hesitation in saying that if that work had been under the Corps of Engineers, which as small as it was had the organization and the *esprit de corps*, that would never have happened; and, in fact, it did not happen in France where, under much greater difficulties they did equally as great work without a single criticism.' (Page 744.)

"COLONEL SHERRILL.—The Construction Division of the Quartermaster General's office. If there is anything that should be placed under the Quartermaster General's office it is that. That was in charge of General Marshall throughout the war, and if you will read the hearings before the Graham committee you will find tremendous graft by people who did not have this training and that organization.' (Page 744.)

"COLONEL SHERRILL.—I do not want to criticize General Marshall's decision, because when war breaks out you have to make decisions quickly, but if you have an organization with a certain method of operation you are not going to be so apt to make mistakes. If you had had this fine engineering organization and had thrown these reserve officers into active service under the same rules, you never would have had that trouble.' (Page 746.)

"The Committee is amazed at the character of these attacks and the inaccuracies which are contained in this testimony. As instances, we are informed that General Rose of the Engineer Corps, U. S. A., entered into a contract with the Phoenix Construction Company for the construction of wharves in France on a cost-plus 10% basis, and extensive contract work was done at Kearney,

N. J., and at Norfolk, Va., by the Engineer Corps on a cost-plus basis. These facts are in direct conflict with the testimony that not 'a single cost-plus percentage contract was done in France.'

"General Beach testified that two-thirds of the Chamber of Commerce throughout the country voted against a department of public works, whereas the records of the Chamber of Commerce show 827½ votes for and 549½ votes against the establishing of a Department of Public Works. The referendum votes of the Chamber of Commerce of the United States are carefully considered before they are submitted to the membership and the conclusions reached are taken with great seriousness by the country as a whole.

"The remarks of Colonel Sherrill relating to camp construction during the war period would seem to be an attempt to establish a superiority in qualifications and character of members of U. S. A. Engineer Corps as compared with engineers, architects, contractors, manufacturers, and business men of the nation. Is the Engineering Profession to infer that the Corps of Engineers of the United States Army sets itself up as supreme and that it considers those members of the profession outside of its own ranks as untrustworthy? Is it to infer that the officers of the Corps of Engineers do not consider the construction of the original cantonments, which were built within ninety days to house more than 40 000 men each, a creditable accomplishment? Is it to infer that General Beach and Colonel Sherrill endorse charges which so far no Court has sustained? Attention is called to a recent decision concerning the construction of Camp Travis in Texas, wherein the Court dismissed the complaint because the complaint could not be sustained.

"The testimony offered by General Beach and Colonel Sherrill might appear as an attack only upon contracting organizations, but the design and supervision of these works was in charge of engineers and architects of national standing and the auditing of accounts and checking of materials was entrusted to accountants chosen because of their ability and integrity. Manufacturers who have for years enjoyed unquestioned and respected reputations have been attacked. When Colonel Sherrill repeatedly uses the word 'graft' he fastens the implication of crime on these men because they were charged not only with the execution of the work, but with safeguarding the interests of the Government.

"In bringing this testimony to the attention of the Board of Direction, your Committee recommends that these implications and charges be not allowed to go unchallenged.

"Respectfully submitted,

"COMMITTEE ON PUBLIC RELATIONS,

"WALTER L. HUBER, *Chairman*,

"JOHN R. FREEMAN,"

"LINCOLN BUSH,

"*Sub-Committee.*"

Report of Sub-Committee of Public Relations Committee:

The Sub-Committee of the Public Relations Committee presented a verbal report, reading excerpts from the *Congressional Records* of June 3 and 4, 1924, in which the proposed bill (Sen. Doc. No. 128) for the Reorganization of the Executive Branch of the Government, the report of the Congressional Joint Committee on the proposed bill, and a supplemental Minority Report are published.

After extended discussion, it was decided, on motion, to publish the excerpts read from the *Congressional Records* mentioned, for the information and use of the membership.

The Sub-Committee of the Public Relations Committee of the Society was continued and instructed to co-operate with the Committee of the American

Engineering Council on Governmental Reorganization as Related to Engineering Matters, composed of the following: Gardner S. Williams, *Chairman*, Francis Blossom, J. Parke Channing, J. H. Finney, John M. Hanna, John Lyle Harrington, Hunter McDonald, P. N. Moore, Lloyd B. Smith, L. B. Stillwell, and Max Foltz.

EXCERPT FROM *Congressional Record* OF JUNE 3, 1924.

"REORGANIZATION OF THE EXECUTIVE DEPARTMENTS (S. Doc. No. 128).

"MR. SMOOT. From the joint committee on reorganization created under a joint resolution passed December 17, 1920, I report the bill which I send to the desk, and I also present the report of the joint committee on the bill. I ask that the report, together with the bill as Appendix C to the report, may be printed in the *Record*.

"I wish to add that there is a supplemental report signed by the Senator from Mississippi [Mr. Harrison] and Congressman Moore of Virginia. I ask that that be printed in the *Record* also.

"I do not expect to call up the bill for consideration during this session of Congress, but I do want to have it printed in the *Record*, so that every Senator may see exactly what changes are recommended by the joint committee in the departments of our Government."

EXCERPT FROM THE SUPPLEMENTAL REPORT, PUBLISHED IN
Congressional Record OF JUNE 4, 1924.

"* * * It has become evident that the expectation of reaching results which would bring about any considerable economies will not be realized. It is believed, however, that a number of the changes may and should tend to promote greater efficiency in the conduct of the activities of the Government.

"The undersigned are opposed to the transfer to the Department of the Interior of the Bureau of Public Roads. The work of that bureau has proven satisfactory and no mere theory would seem to justify the transfer. In their opinion, its retention in the Department of Agriculture will be a case of 'letting well enough alone.' * * *

"PAT HARRISON
"R. WALTON MOORE."

EXCERPTS FROM *Congressional Record* OF JUNE 3, 1924.

"MR. SMOOT, from the Joint Committee on Reorganization of Executive Departments reported a bill (S. 3445) to provide for the reorganization and more effective coordination of the executive branch of the Government, to create the department of education and relief, and for other purposes, which was read twice by its title and ordered to be placed on the calendar and to be printed in the *Record*, as follows:

"A bill to provide for the reorganization and more effective coordination of the executive branch of the Government, to create the department of education and relief, and for other purposes.

"* * * * *

"THE DEPARTMENT OF THE INTERIOR.

"Recommendations have been presented to the committee by a number of groups—chiefly the engineering societies—looking to the establishment of a department of public works. These suggestions have much to commend them, for it has long been evident that the Government's engineering and public works enterprises, although divided among a number of departments, are of sufficient importance and require so large a personnel in their prosecution as to raise a presumption in favor of their concentration in a department devoted exclusively to their administration. The organization maintained under the

Chief of Engineers of the Army for the improvement of rivers and harbors, the Bureau of Public Roads, the Supervising Architect's Office, the Board of Road Commissioners for Alaska, the Federal Power Commission, the Office of Public Buildings and Grounds, the Reclamation Service, and the Geological Survey are all alike in that they deal primarily with civil-engineering questions. Although their problems are essentially divergent in detail and their purposes clearly separated, it is of course true that they all involve the application of the same scientific principles and substantially similar practical methods. It is true also that the technical personnel of the several agencies enumerated is much the same in character and training, and to a lesser extent, in form of organization. It is claimed by engineers that many advantages would result from the association of these establishments in a single department devoted exclusively to public works and related matters. The committee does not, however, recommend such action at this time. It proposes instead a concentration of certain public works activities under the Department of the Interior, leaving in their present status a few engineering functions which, in the judgment of the committee, can be performed to best advantage by the organizations which now have them in charge."

"The general similarity of the agencies which it proposes to locate in the Department of the Interior will be evident from an enumeration of their activities as they will appear under the organization recommended. The department will in reality become a department of public domain and public works, and its principal subdivisions will be as follows:

"Public domain.—Alaska and Hawaii, Indian Lands and Reservations, General Land Office, Geological Survey, and National Parks.

"Public works.—Public Roads, Alaskan Railroads, Alaskan Roads and Trails, Reclamation and Water Power, and Public Buildings."

"The committee gave careful consideration to a recommendation urged by many that river and harbor work should be withdrawn from the War Department, where it is now handled by the Chief of Engineers, and placed in the Department of the Interior along with the engineering functions above enumerated. It is true, of course, that at the present time the improvement of rivers and harbors and the construction and maintenance of river and port works are chiefly done in the interests of navigation and commerce and presents few, if any, military aspects; and this constitutes the basis for the view that river and harbor work should be removed from the jurisdiction of the Military Establishment.

"With this view, however, the committee is not in accord. The assignment of Army engineers to river and harbor work is at the present time the principal means whereby these officers can acquire the engineering experience necessary to fit them to meet the demands put upon them in time of war; and, on the other hand, there is a measure of economy in using the personnel of the Corps of Engineers on necessary public works of a non-military character. Although these matters are subject to violent differences of opinion, there is little doubt in the minds of the committee that the present arrangement tends to increase the value and efficiency of Army engineers, without material disadvantage, if any at all, to the Government. River and harbor work seems to present special phases of engineering, which would make it difficult to consolidate or amalgamate the organization maintained for its prosecution with other engineering agencies of the Government; and the committee finds itself unable to recommend any change at this time in the arrangement under which the major responsibility for the engineering maintenance of inland navigable waters and port works is lodged in the War Department."

"THE NECESSARY LEGISLATION

"The committee submits a bill (Appendix C) designed to effectuate the changes proposed, and it recommends its favorable consideration by Congress. Following is a plan of the bill: * * *

"TITLE II.—DEPARTMENT OF COMMERCE

"Section 201: Bureaus, offices, and branches of service transferred to Department of Commerce as follows:

- (a) From Department of the Interior—
Bureau of Mines.
Patent Office.
- (b) National Advisory Committee for Aeronautics
- (c) From the Department of War—
Lake Survey Office.
- (d) Inland and Coastwise Waterways Service, transferred from Department of War.
- (e) Name of Bureau of Census changed to Bureau of Federal Statistics; statistics of mineral production and of water borne commerce transferred to Bureau of Federal Statistics."

* * * * *

"TITLE III.—DEPARTMENT OF THE INTERIOR

"Section 301: Bureaus, offices, and branches of service transferred to Department of the Interior, as follows:

- (a) From the Department of Agriculture—
Bureau of Public Roads.
- (b) From the Department of the Treasury—
Supervising Architect's Office.
- (c) From the Department of War—
Board of Road Commissioners for Alaska (abolished and its functions transferred to the Department of the Interior)."

"TITLE V.—OFFICE OF PUBLIC BUILDINGS AND PARKS IN THE DISTRICT OF COLUMBIA

"Section 500: Office of Buildings and Parks in the District of Columbia created as independent establishment. Chief officer to be Superintendent of Public Buildings and Parks in the District of Columbia."

* * * * *

"The committee proposes that the reorganization legislation, if adopted, shall be effective on March 4, 1925—at the beginning of the next administration. The bill has been drafted accordingly; but in order to allow for necessary preliminary arrangements, it provides that those sections which relate to the transfer of agencies from one department to another shall not be operative until July 1, 1925, the beginning of the fiscal year.

"Respectfully submitted,

REED SMOOT,
J. W. WADSWORTH, JR.,
CARL E. MAPES,
H. W. TEMPLE."

Salary of Secretary Increased:

In an Executive Session, held on June 17, 1924, the Board decided unanimously that, beginning July 1, 1924, Secretary Dunlap's salary would be \$12 000 per year.

American Society of Engineers:

Information about a Society known as "the American Society of Engineers" organized in the State of Illinois was presented. After discussion, the matter was referred to the President and Secretary with power to act, and an allotment not to exceed \$500 was granted in connection with protesting both the use of the name "American Society of Engineers" and the form of its badge.

Report of Committee on Technical Activities and Publications:

The Committee on Technical Activities and Publications submitted a report, outlining its progress in the arrangements for future meetings, and announcing changes recently adopted that are expected to effect a saving in the cost of meetings and publications of about \$8 000 per year.

Society Meeting of May 7, 1924

At the regular meeting of the Society held on May 7, 1924, in Engineering Societies Building, 33 West 39th Street, New York, N. Y., a paper by John A. Miller, Jr., Assoc. M. Am. Soc. C. E., entitled "The Secondary Effect of Certain Important River Bridges on Local Transit Conditions" was presented by the author who illustrated his remarks with lantern slides.

Following the presentation of the paper the subject was discussed by Messrs. Charles Evan Fowler, Herbert C. Keith, D. B. Steinman, M. W. Weir, Harold M. Lewis, H. H. Smith, Ole Singstad, and T. Kennard Thomson.

Director Clifford N. Holland presided at the meeting, which was attended by about 66 members and guests. One of the guests at the meeting was James Tyler, Assoc. M. Am. Soc. C. E., Assistant City Engineer of Auckland, New Zealand, who was on a leave of absence, making an extended visit to various cities in this country.

Fall Meeting, Detroit, Mich.

Arrangements for the coming Fall Meeting of the Society, which will be held in Detroit, Mich., October 22-25, 1924, are practically completed and an instructive and timely technical program is assured.

On Wednesday afternoon, October 22, preceding the main session of the meeting, the Sanitary Engineering Division will hold a Joint Session with the Sanitary Section of the American Public Health Association. The main session, which will occupy the morning and afternoon of Thursday, October 23, will be devoted to the presentation of a paper by F. C. Shenehon, M. Am. Soc. C. E., on "The St. Lawrence Deep Waterway to the Sea", and its discussion.

The Power, Highway, City Planning, and Sanitary Engineering Divisions are also arranging technical programs, and a number of interesting sight-seeing excursions, and social functions are being planned.

Further details of the meeting will be given in the September *Proceedings* and later in the Official Program which will be forwarded to the membership.

Publications of Engineering Societies for Distribution

A valuable set of publications of this and other Technical Societies are available for distribution through the generous offer of William Pierson Judson, M. Am. Soc. C. E. The bound volumes in question include *Transactions* and *Proceedings* of this Society from 1900 to 1923, *Minutes of Proceedings* of the Institution of Civil Engineers (British) 1892 to 1923, and *Transactions* and *Proceedings* of the American Institute of Electrical Engineers, 1884 to 1912 (*Transactions* being cloth bound). Mr. Judson suggests that some engineering college which does not possess these publications might be interested in obtaining the whole or a portion of the material available. Inquiries should be addressed to William Pierson Judson, Broadalbin, N. Y., stating whether the shipment is to be made by freight or by express, the transportation charges to be C. O. D.

Investigation of Impact in Highway Bridges

The Special Committee of the Society on Impact in Highway Bridges has arranged an especially interesting program for the present summer. The twelve-element electrical strain-gauge which has been built at the U. S. Bureau of Standards will be used on the co-operative bridge project at Ames, Iowa, for the testing of bridge floors. The next important study on the Committee's program of research is expected to deal with impact in highway trusses, for which purpose it hopes to build a special 130-ft. span, having a 20-ft. concrete roadway, designed in accordance with the recent specifications for highway bridges submitted by the Society's Committee on Bridge Design and Construction. With such a truss located independently of any highway, it is anticipated that all special tests could be provided, such as for heavy trucks, tractors and trailers, crowds of people, live stock, etc. The Committee is now endeavoring to obtain a structure suitable for this purpose.

Publications of the American Society for Testing Materials

The Annual Meeting of the American Society for Testing Materials, which was held at Atlantic City, N. J., June 24-27, 1924, was marked by the presentation of valuable papers and discussions. Among those which are of especial interest to members of the Society are reports on Brick, Timber, and Preservative Coatings for Structural Materials, also papers on "Laboratory Investigations of the Influence of Curing Conditions and Various Admixtures on the Life of Concrete Stored in Sulfate Solutions as Indicated by Physical Changes", by Mr. Dalton G. Miller, and on "Accelerated Wear Tests of Concrete Pavements", by Messrs. F. H. Jackson and J. T. Pauls.

New Student Chapters

By action of the Board of Direction, April 8, 1924, new Student Chapters were authorized as follows:

State College of Washington, Pullman, Wash. Officers: Robert F. McCoy, President; H. D. Gorst, Secretary-Treasurer.

University of Utah, Salt Lake City, Utah. Officers: Hugh M. Lyman, President; Theodore Jensen, Secretary-Treasurer.

The Board of Direction at its meeting in Pasadena, Calif., June 16, granted authority for the formation of Student Chapters at the Agricultural and Mechanical College of Texas, College Station, Tex., and at the University of Southern California, Los Angeles, Calif.

Engineering Foundation Assigned a Room in the New Building for the National Academy of Sciences and National Research Council

On April 28, 1924, the beautiful new marble building for the National Academy of Sciences and the National Research Council, near the Lincoln Memorial in Washington, D. C., was dedicated with appropriate ceremony, including an address by the President of the United States. The total cost of building and land exceeds \$1 500 000.

In connection with the dedication, Room 222 was formally assigned to Engineering Foundation "in token of the appreciation of the assistance rendered by the Engineering Foundation to the National Academy of Sciences in the establishment of the National Research Council".

A simple ceremony in this room signalized the expression of good-will between scientists and engineers. After a brief statement by President A. A. Michelson of the National Academy announcing the assignment of the room, Mr. Gano Dunn, as Chairman of the National Research Council, recounted the aid given by Engineering Foundation in establishing the Research Council, and formally delivered the room. Edward Dean Adams, Vice-Chairman of Engineering Foundation, responded briefly, and Ambrose Swasey, Hon. M. Am. Soc. C. E., offered a few remarks. Charles F. Loweth, Past-President, and Secretary Dunlap represented the Society on this occasion.

Society Representatives

Arrangements have been made for representation of the Society in various activities by the following appointments: International Mathematical Congress, Charles H. Rust and Frederick A. Gaby; Fiftieth Anniversary of the Société Vaudoise des Ingénieurs et des Architectes, Lausanne, Switzerland, F. H. Constant; Kelvin Centenary Celebration, John R. Freeman, with Harrison P. Eddy as alternate; Engineering Division, National Research Council, three-year term, beginning June 30, 1924, H. Hobart Porter; Conference on Standardization of Cast-Iron Pipe, William W. Brush and Thomas H. Wiggin; Committee on Prizes, Charles D. Marx, Murray Blanchard, and J. W. Beardsley; International Conference of Sanitary Engineers (London,

England, July 7, 1924), Harrison P. Eddy, George W. Fuller, T. Chalkley Hatton, Charles H. Hurd, G. Bertram Kershaw, Herbert E. Nicol, Langdon Pearse, George H. Shaw, James Tyler, and Paul Hansen; Semi-Centennial at Purdue University, May 1-3, 1924, George W. Hand; Annual Meeting of the American Academy of Political and Social Science, Benjamin Franklin, William Easby, Jr., and Gustave R. Tuska; Centenary of Franklin Institute, Philadelphia, September 17, 1924, George S. Webster; Society Committee to Canvass Ballots for Nominees, William F. Reeves, Chairman; Advisory Committee on Structures and Fabricated Metals (U. S. Bureau of Standards), Theodore L. Condon and F. H. Constant; Society Committee on Districts and Zones, Glenn D. Holmes, Theodore L. Condon and Arthur O. Ridgway.

Officers of the American Institute of Electrical Engineers

At its Annual Meeting May 16, 1924, the American Institute of Electrical Engineers elected the following officers for the coming year: President, Farley Osgood; Vice-Presidents, Harold B. Smith, L. F. Morehouse, Edward Bennett, H. W. Eales, and John Harisberger; Managers, John B. Whitehead, E. B. Merriam, and J. M. Bryant; Secretary, F. L. Hutchinson; Treasurer, George A. Hamilton.

Assistance for American Mathematical Society

The American Mathematical Society, an incorporated National organization, is obliged to raise an endowment of \$100 000 to continue its scientific activities. In seeking the support of engineers, that Society suggests that mathematics is the basis of those exact sciences on which engineering rests. If any members desire to assist this worthy cause, checks may be sent to the Society's office, 501 West 116th Street, New York, N. Y.

Notes on Visits of the President and Secretary, 1924

The following memoranda covering visits of the President and Secretary of the Society for the present calendar year, to the time of the Pasadena Convention, are here given for the information of members:

Monday, January 7, Pittsburgh, Pa.:

President Grunsky, then Vice-President, addressed a meeting of the Pittsburgh Section.

Monday, January 27, Chicago, Ill.:

President Grunsky attended an evening dinner meeting of the Illinois Section, following which he addressed the Western Society of Engineers.

Monday, March 31, Denver, Colo.:

President Grunsky addressed an evening dinner meeting of the Colorado Section.

Friday, April 4, Lexington, Va.:

The Secretary addressed about 130 Junior and Senior, Civil, Electrical, and Chemical Engineering Students at the Virginia Military Institute.

Saturday, April 5, Washington, D. C.:

President Grunsky gave one of the principal addresses at the evening dinner meeting in honor of Arthur P. Davis, Past-President, Am. Soc. C. E.

Monday to Saturday, April 7 to 12, Atlanta, Ga.:

Spring Meeting of the Board of Direction and Society.

Monday, April 14, New Orleans, La.:

In the afternoon the President and the Secretary addressed about 200 engineering students at Tulane University. At an evening dinner meeting of the Louisiana Section the President spoke, and at 8 p. m., both the President and the Secretary addressed a Joint Meeting of the Louisiana Section and the Louisiana Engineering Society, about 75 being present.

Tuesday, April 15, Houston, Tex.:

The President and the Secretary addressed a noon luncheon meeting of the Houston Engineers' Club, about 70 being present, and in the afternoon addressed about 75 engineering students at Rice Institute. At an evening dinner meeting of Society members in Houston, Society affairs were discussed.

Wednesday and Thursday, April 16 and 17, Brownsville, Tex.:

The President and the Secretary attended a very successful and interesting Spring Meeting of the Texas Section at Brownsville, Tex. About 90 members and guests registered. Both the President and the Secretary participated in the discussions and delivered addresses.

Saturday, April 19, Oklahoma City, Okla.:

The President and the Secretary attended an informal meeting of members of the Oklahoma Section at 10 a. m.; at noon addressed a luncheon meeting of the Local Chapter of the American Association of Engineers, about 35 being present; in the evening addressed a dinner meeting of the Oklahoma Section, 14 being present.

Monday, April 21, St. Louis, Mo.:

The President and the Secretary addressed a noon luncheon meeting of the St. Louis Section, 49 being present, and in the afternoon addressed about 35 members of the Student Chapter and Faculty at Washington University.

Tuesday, April 22, Nashville, Tenn.:

The President and the Secretary at noon addressed a joint luncheon meeting of the Nashville Section and the Engineering Association of Nashville, 62 being present.

Wednesday, April 23, Cincinnati, Ohio:

The President and the Secretary addressed a morning assembly of about 300 engineering students at the University of Cincinnati. At a noon luncheon with about 15 members of the Cincinnati Section plans were discussed for the Spring Meeting of the Society to be held in Cincinnati in April, 1925. At an evening dinner meeting, with about 23 present, addresses were given on Society affairs.

Thursday, April 24, Dayton, Ohio:

The President addressed a noon luncheon meeting of the Dayton Engineers' Club, about 60 being present. In the evening the President and the Secretary addressed a dinner meeting of the Dayton Section, about 35 being present.

Friday, April 25, Columbus, Ohio:

At 4 p. m., the President and the Secretary addressed an assembly of about 150 engineering students at the Ohio State University. In the evening, at a joint dinner of the Central Ohio Section and the Columbus Engineers' Club, both the President and the Secretary delivered addresses, about 39 being present. A meeting of the Section followed, at which Society affairs were discussed.

Wednesday, April 30, Ogden and Salt Lake City, Utah:

President Grunsky addressed at Ogden a meeting of civic organizations and at Salt Lake City delivered the principal address at the Annual Dinner of the Utah Engineering Council.

Tuesday, May 20, Providence, R. I.:

The Secretary addressed an evening dinner meeting of the Providence Section, about 17 being present, and at 8:30 p. m., a Joint Meeting of the Providence Section and the Structural Section of the Providence Engineering Society, about 75 being present.

Monday, June 2, Philadelphia, Pa.:

The Secretary addressed the Annual Dinner Meeting of the Philadelphia Section.

In addition to the meetings noted, the President and the Secretary were entertained by excursions, luncheons, and dinners, arranged through the courtesy and hospitality of Society members, which contributed greatly to the pleasure and the success of the visits.

Standardization of Cast-Iron Pipe

A conference regarding the proposed standardization of cast-iron pipe was held in New York, N. Y., June 5, 1924, at the call of the American Engineering Standards Committee. The meeting was largely attended and developed full discussion of this important subject. The conclusion of the meeting was to the effect that it was desirable to undertake the unification of specifications for cast-iron pipe, including materials, methods of manufacture, dimensions, pressure ratings, and methods of installing pipes, and that existing specifications be enlarged to include flange pipes and other special fittings. For the sponsorship of this work under the American Engineering Standards Committee, the following associations were selected: American Water Works Association, American Society for Testing Materials, and American Gas Association. Messrs. Thomas H. Wiggin and W. W. Brush, as representatives of this Society, took an active part in the meeting.

American Construction Council

A meeting of the Board of Governors of the American Construction Council was held April 22, 1924, in New York, N. Y., to consider the welfare of the construction industry and its relation to the commerce and industry of the nation at large. The Council has been active in organizing building congresses throughout the country and in co-operating with Government officials particularly those of the U. S. Department of Commerce in its work of simplified practice. It went on record as favoring the proposed Department of Public

Works. At this meeting it was pointed out that there was great need for restrictions to insure better building and measures were taken to accomplish this improvement. The consensus of opinion seemed to indicate a general condition of stability in the building industry. The Secretary of the Society being unable to attend this Conference, Rudolph P. Miller, M. Am. Soc. C. E., was appointed as his representative.

Eads Bust Installed in Hall of Fame

On the afternoon of May 13, 1924, in a large pavilion on the grounds of New York University, the bust of the late James B. Eads, F. Am. Soc. C. E., was formally presented to the Hall of Fame by the Society. The bust of Captain Eads, by Charles Gaffy, which was unveiled by James Eads Switzer, a grandson, was presented on behalf of the Society by George S. Davison, Vice-President, and the address was delivered by George F. Swain, Past-President. In Professor Swain's discourse which did full justice to the notable accomplishments of this the first engineer to enter the Hall of Fame, he commented significantly on the engineer's part in national development and on his valid claims to greatness.

The official party from the Society included, Messrs. Davison, Dunlap, Herschel, Holland, and Yates. Also, in the Eads group was Governor A. M. Hyde of Missouri, which State was the site of several of Captain Eads' accomplishments.

Busts were also presented in honor of the deeds of John Adams, Phillips Brooks, Samuel L. Clemens, Peter Cooper, Joseph Henry, Andrew Jackson, Thomas Jefferson, Dr. William T. G. Morton, and Alice Freeman Palmer. Many men noted for their scientific achievements were in the official party, as exemplified by Dr. W. W. Keen, Thomas A. Edison, Dr. James B. Angell, to say nothing of those representing the American Institute of Electrical Engineers and the Society.

Annual Meeting of the American Academy of Political and Social Science

On May 16 and 17, 1924, in Philadelphia, Pa., occurred the Twenty-eighth Annual Meeting of the American Academy of Political and Social Science. The general topic "America and the Post-War European Situation" was discussed by a large number of special speakers and also in part by the general audience. This Society was represented at the meeting by Benjamin Franklin, William Easby, Jr., and Gustave R. Tuska, Members, Am. Soc. C. E.

Minimum Specifications for Highway Engineering Positions

Under this title, the National Research Council has published in its Bulletin for May, 1924, a report of a committee appointed by the American Association of Engineers. This report devotes more than 100 pages to a study of the requirements for various positions in highway work from the most elementary as chainman or draftsman to the most exacting as construction, maintenance,

or bridge engineer. These requirements are listed under the separate headings of "Skill", "Knowledge", and "Personal". For each position there is given a complete set of problems for demonstrating the suitability of the individual, which problems cover the extensive fields as exemplified by the various positions. For this complete report, which "is presented to the engineering profession, personnel, employment, and classifying agencies, civil service commissions, educational institutions, and others interested in the hope that it may be of service for the proper selection, assignment, promotion, transfer, and training of highway engineers", engineers are indebted to a committee of which A. B. McDaniel, M. Am. Soc. C. E., is Chairman, and in which are included the following members of the Society: Messrs. C. J. Tilden, W. A. Bassett, and Charles S. Shaughnessy. There is also an Advisory Board the members of which include E. C. Griffenhagen and J. L. Jacobs, Members, Am. Soc. C. E.

Engineering Work of St. Lawrence River Commission

Both the Canadian National Advisory Committee on the St. Lawrence Waterway Project and the St. Lawrence Commission of the United States have appointed three engineers to act as technical advisers. It is expected that these engineering representatives will meet during the present summer to formulate subjects for reference to the Joint Engineering Board. Inasmuch as no appropriation was made for any of this work by the United States, Government engineers were detailed for it as part of their regular duties. The Canadian appointees are: D. W. McLachlan, Assoc. M. Am. Soc. C. E., O. A. Lefebvre and Brig.-Gen. C. H. Mitchell, Members, Am. Soc. C. E., and the American engineering members: Lieut.-Col. G. P. Pillsbury, M. Am. Soc. C. E., Col. William Kelly, M. Am. Soc. C. E., and Col. Edgar Jadwin.

Work of the American Bureau of Welding and Its Committee on Welded Rail Joints

The American Bureau of Welding, with which the Society is co-operating, aims (1) to bring to bear on the solution of welding problems the latest scientific knowledge and the scientific method of attack and to this end the co-operation of all organized scientific and engineering organizations has been enlisted; and (2) to provide an organization the reports and pronouncements of which will be accepted the world over as sound and absolutely free from commercial bias.

The work of the Bureau is carried on through its sub-committees, among which may be mentioned those on "Application of Arc Welding to Ship Construction", "Investigation of Welded Pressure Vessels", "Welded Rail Joints", and a proposed one on "Application of Welding in the Structural Steel Field".

The Committee on Welded Rail Joints co-operates likewise with the American Electric Railway Engineering Association. In its Progress Report No. 2, it reviews the tests to January, 1924, in which various methods of welding and types of joints are fully discussed, together with the behavior of these joints under critical tests. This report gives promise of great usefulness in standardizing this important element in track construction.

The representatives of the Society on the Bureau of Welding is L. H. Davis, M. Am. Soc. C. E., and on the Committee on Welded Joints, Howard H. George and E. M. T. Ryder, Members, Am. Soc. C. E.

Edward Flad on the Mississippi River Commission

The new civilian engineer member of the Mississippi River Commission is Edward Flad, M. Am. Soc. C. E. Mr. Flad was selected by the Secretary of War, nominated by the President, and the nomination confirmed in the Senate on May 31, 1924. He has had extensive experience as Water Commissioner for St. Louis, as Public Service Commissioner for Missouri, and in wide consulting practice. A similar position on the Mississippi River Commission was formerly held by the late John A. Ockerson, Past-President, Am. Soc. C. E.

Czechoslovakia Honors American Engineer

As a token of appreciation for helpfulness extended to it by Engineering Foundation and as an expression of good-will toward American engineers, Alfred D. Flinn, M. Am. Soc. C. E., Director of Engineering Foundation, has been made an honorary foreign member of the Masarykova Akademie Práce, of Prague. This is the highest honor which the sister republic confers on foreign technical men.

Second Conference on Lumber Standardization

On April 22, 1924, in Washington, D. C., a Second Conference on Lumber Standardization was held. These conferences are called to discuss a draft of simplified practice as to recommendations on lumber formulated by the Central Committee on Lumber Standards, seconded by the Division of Simplified Practice of the U. S. Department of Commerce. Various matters as to dimensions and commercial handling of lumber were discussed. The important matter of structural grading for lumber in which engineers are so much interested was left to the Regional Association of Manufacturers with the understanding that any tentative standards are to be merged in one common standard at some future conference. Messrs. E. A. Frink and Earl Stimson, Members, Am. Soc. C. E., represented the Society at this Conference.

Semi-Centennial of Purdue

Purdue University is fifty years old and celebrated its anniversary in an appropriate manner on May 1-3, 1924. The exercises included demonstrations, musical and social events, addresses by men prominent in national and college life, and educational conferences. The society joined in honoring this prominent engineering school, having been represented by George W. Hand, Assoc. M. Am. Soc. C. E.

Washington Award to Arthur N. Talbot

At the Annual Meeting of the Western Society of Engineers, June 9, 1924, the Washington Award for 1924 was conferred on Arthur N. Talbot, Past-

President, Am. Soc. C. E., for "his life work as student and teacher, investigator and writer and for his enduring contribution to the science of engineering." This honor has previously been bestowed on Herbert Hoover, M. Am. Soc. C. E. (in 1919) and the late Robert Woolston Hunt, M. Am. Soc. C. E. (in 1922).

Selection of Papers for Proceedings

As a matter of general interest, members may wish to be informed as to the procedure in handling papers published by the Society. Supervision of this part of the Society work is delegated to the Standing Committee of the Board of Direction on Technical Activities and Publications.

Papers considered suitable for publication are submitted by members and non-members alike and should be in prescribed form as indicated by the rules of the Committee printed on the inside back cover of the Year Book. On its receipt the paper passes into the hands of the Committee which thereafter has jurisdiction over it until it is published or unless it is withdrawn by the author.

Papers are submitted to at least three experts for criticism and advice. These men are usually members of the Society, of mature experience in the particular field in question and men whose standards, ability, and judgment are unquestioned. To avoid any personal bias, the author's name is not disclosed to the experts, in order to assist them in their conclusions solely on the merits of the paper itself.

The basis for approval by the experts is that the paper shall be a distinct contribution to engineering literature, that is, it must have positive value, either because it contains new and essential facts or because it furnishes the basis for profitable discussion. In addition to these positive requirements papers are rejected if they contain matter (a) readily found elsewhere; (b) carelessly prepared; (c) controverting established facts; (d) advocating special interests; or (e) purely speculative or foreign to the purposes of the Society.

Final acceptance or rejection of the paper is by vote of the Committee, almost without exception according to the prevailing opinion of the experts, extended if necessary by further reviews until some definite consensus results.

In case of acceptance, the paper is turned over to the Editorial Department where it is carefully revised as to contents, form, and style in accordance with the regulations of the Committee. The edited copy is then sent to the author for approval and after all questions have been settled satisfactorily to both author and editors, the final form is printed in *Proceedings*.

At present, the Society is fortunate as regards the number and high quality of papers awaiting publication. The continuation of this condition depends on the inducements offered to authors of high-class papers in the fact of the superior standards of the Society *Proceedings*. In this connection, Local Sections should be interested in forwarding to the Society any suitable papers which may be offered at their individual meetings.

National Conference on Outdoor Recreation

This National Conference (May 22-24, 1924) was arranged by a Special Committee on Outdoor Recreation appointed by President Coolidge; it included

in its attendance a large group of representative citizens who were interested in furthering its aim. This Society was represented by A. N. Johnson and R. C. Marshall, Jr., Members, Am. Soc. C. E., and D. F. Holtman and Hugh Miller, Associate Members, Am. Soc. C. E. In its work, the Conference was subdivided into various committees covering among other matters the question of various forms of animal and vegetable life, parks and waterways, and various economic and administrative details of the work. Dean Johnson was a member of the Committee on Closer Correlation of the Work of Federal Agencies in Outdoor Recreation, and Mr. Holtman was Secretary of the Committee on the Correlation of Outdoor Recreational Agencies other than Federal. Reports from these delegates indicate that the meeting excited general interest and gave promise of ultimate benefit to the Nation from the continued efforts of such an organization.

Bound Volumes of Engineering News Available

A member of the Society is courteously offering several volumes of *Engineering News* (1890-1914, approximately), bound in cloth, for the use of some technical school or library which is in need of such volumes. Freight is to be paid by the institution accepting the offer. The Secretary's office is authorized to invite inquiries as to the disposition of these volumes and will undertake to transmit them to the donor.

Cornell University Receives Portraits of Deans Haskell and Smith

In an attempt to perpetuate the memory of Deans Albert W. Smith and Eugene E. Haskell, the Cornell Society of Engineers hit on the excellent plan of presenting portraits of these former officers to the University. This presentation took place at the Cornell Club of New York on January 12, 1924, being accepted for the University by the President, Livingston Farrand. Dean Haskell is a member and former Director of the Society; Dean Smith is a member of the American Society of Mechanical Engineers.

Foreign Standards for Civil Engineering Work

Copies of various standards of foreign countries issued in 1923 and dealing with Civil Engineering work, have been collected by the American Engineering Standards Committee, 29 West 39th Street, New York, N. Y., and can be furnished at a nominal price. Among these are the following:

Austria.—Austrian Standards Committee for Industry and Trade: Various standard details for small dwellings, such as doors, windows, stairways, and chimneys.

Belgium.—Belgian Standard Association: Design and inspection of reinforced concrete, also recommended nomenclature.

Canada.—Canadian Engineering Standards Association: Specifications for various kinds of reinforcing material for concrete.

Germany.—Standards Committee of German Industry: Various parts of small dwellings; data on cast-iron and concrete sewer pipe; dimensions for small highway bridges; and reinforcing steel and structural steel for building.

Great Britain.—British Engineering Standards Association: Properties of rolled steel sections; Portland cement; sand-lime brick.

Sweden.—Swedish Industrial Standards Committee: Dimensions for railway spikes.

Isostatic Investigations and Gravity Determinations

A special publication of the U. S. Coast and Geodetic Survey recently issued is entitled "Isostatic Investigations and Data for Gravity Stations in the United States Established Since 1915". The author is William Bowie, M. Am. Soc. C. E., Chief of the Division of Geodesy of the Survey. This book of ninety pages, well illustrated, gives an extensive discussion of the investigations carried on by the U. S. Coast and Geodetic Survey dealing with the stability of the earth's crust and with the processes which have been at work to change the configuration of its surface. The earth movements, horizontal and vertical, although they are very slow in relation to human time, nevertheless are of interest to engineers. The monograph also discusses the precise gravity determinations recently carried out by the Survey.

Report on Plumbing

A report on Recommended Minimum Requirements for Plumbing Installations in Dwellings and Similar Buildings (U. S. Department of Commerce), is the second in a series of which Recommended Minimum Requirements for Dwelling Construction was the first.

The report has been in preparation for more than two years by a committee of distinguished sanitary engineers, and presents their final judgment on many disputed questions in the plumbing industry.

In addition to a code of minimum requirements recommended for State and municipal adoption, the report gives detailed results of extensive experiments at the U. S. Bureau of Standards with complete plumbing installations. It discusses public inspection of plumbing work, the desirability of licensing plumbers, and the relation of plumbing to health. It also gives directions for designs of plumbing which materially reduce cost as compared to present practice, without loss of efficiency. Most of the information applies to buildings of large size as well as to dwellings.

The report contains 250 pages of text and more than 100 illustrations, and may be obtained at 35 cents per copy from the Government Printing Office, Washington, D. C.

Manufacturers Support the Engineering Societies Library

The gratifying increase in the use of the Engineering Societies Library has brought embarrassment as well as pleasure to its management, for the difficulty of maintaining it on an adequate scale has been increased greatly by its widening activities.

The chief support of the Library comes from the Founder Societies; these Societies are not able to increase their appropriations as rapidly as the demands on the Library increase. As much of the increased use of the Library is due

to the enlarged interest of the industrial world in research, the situation of the Library was brought to the attention, early this year, of some of the industrial concerns that are making use of it. Many of them have immediately recognized the value of such a storehouse of information to their engineers and research workers and the advantages of keeping its equipment complete. Subscriptions have been received from a large number of important companies and others have the matter under consideration.

At the last meeting of the Library Board, the following resolution of thanks was adopted:

"Whereas: In accordance with the instruction of the Board, the Secretary has written to a number of prominent organizations which have used the Library and its service, and asked for contributions toward its maintenance, and

"Whereas: Many organizations have contributed and others, we are advised, are giving consideration to the matter; therefore be it

"Resolved: That the hearty thanks of this Board be extended to those organizations that are enabling it, by their generous contributions in response to its statement of the condition of the Engineering Societies Library, to maintain the resources of the Library on a plane adequate to their needs for service.

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Local Sections*

Central Illinois.—April 11, 1924. Discussion of papers "Highway Research in Illinois" opened by Mr. H. F. Clemmer and "Researches on the Structural Design of Highways by the U. S. Bureau of Public Roads" led by Mr. C. C. Wiley. The following officers were elected: President, C. C. Williams; Vice-President, R. R. Benedict; and Secretary-Treasurer, C. C. Wiley. Attendance 22.

Cincinnati.—April 14, 1924. "Airplanes and the Structural Problems Involved", by Professor H. B. Luther of the University of Cincinnati, illustrated by blackboard sketches. The talk was followed by a general discussion of the subject. The following officers were elected: President, George D. Brooke; Vice-President, C. W. Kutz; and Secretary-Treasurer, Clifford N. Miller. Attendance 8.

Cleveland.—April 9, 1924. Local matters and Society affairs were discussed. Attendance 10.

Colorado.—May 29, 1924. "Reconstruction of the Philadelphia Navy Yard During the War" by Mr. George M. Bull. This talk was illustrated with lantern slides. Attendance 21.

Connecticut.—April 26, 1924. Reports were made on the Spring Meeting at Atlanta, Ga., and the following officers were elected: President, L. J. Carmalt; Vice-President, P. G. Laurson; Secretary-Treasurer, C. M. Blair. Attendance 16.

Detroit.—June 5, 1924. The plans for the coming Fall Meeting were discussed and resolutions were adopted relating to Conferences of Local Section Representatives. Following a dinner there was an informal discussion on the bearing value of local soils. It was voted to appoint a Local Committee on the Bearing Value of Soils in the Vicinity of Detroit and to suggest a method of reporting and recording results of investigations. Attendance 23.

Duluth.—April 21, 1924. "General Outline of the Components Organized for National Defense" by Capt. M. S. Williamson, U. S. A. This talk was greatly appreciated by those present. Attendance 23.

May 19, 1924. The following officers were elected: President, O. H. Dickerson; First Vice-President, E. H. Dresser; Second Vice-President, H. C. Ash; Secretary, W. O. Brockway; Treasurer, John Carson. Attendance 28.

Kansas City.—June 3, 1924. A Sub-Committee on Technical Activities and Publications was appointed and the matter of indorsing a National Department of Public Works was discussed. Attendance 17.

Los Angeles.—April 9, 1924. "The General Features for Obtaining an Additional Water Supply for Los Angeles, from the Colorado River", by Mr. William Mulholland. The subject was discussed in detail by members present. Attendance 141.

* For list of Local Sections, Officers, Rules, etc., see 1924 Year Book, p. 27.

April 18, 1924. "The Proposed Flood Control Bond Issue, Together with a Consideration of its Bearing upon the Colorado River Water Supply for the Los Angeles District" was the subject of the meeting. Discussion was opened by Mr. H. W. Dennis and participated in by other members present. Attendance 130.

New York.—April 16, 1923. "Air Service and the Development of Aeronautics" by Col. Mason M. Patrick, U. S. A., Chief of Air Service. Col. Patrick gave an illustrated address on the development of aircraft during the World War, their commercial value, and the different types of machines. Attendance 150.

May 21, 1924. Annual Meeting. The following officers were elected: President, John P. H. Perry; Vice-President, John R. Slattery; Secretary, Harold M. Lewis; Directors, James B. French and Walter E. Spear. Attendance 80.

Since the Annual Meeting, President Perry has appointed, to date, the following Committees to serve for the year 1924-25: Programme Committee: J. Wright Taussig, Chairman, H. Malcolm Pirnie, Elihu C. Church, N. C. Johnson, Daniel E. Moran, William H. Rose, Philip Sawyer, C. H. Stengel; Professional Relations Committee: R. P. Miller, Chairman, R. W. Boyd, Fred Lavis, M. M. Upson, M. J. Whitson; Public Relations Committee: R. R. Rumery, Chairman, R. D. Black, Gavin Hadden, J. F. Sanborn, F. C. Wight, M. W. Williams; Membership Committee: R. M. Freeman, Chairman, R. W. Armstrong, E. B. Day, W. J. Shea, H. D. Winsor; Special Committee: Joint Committee on Structural Safety: J. B. French, Chairman, O. H. Landreth, I. W. McConnell, W. C. Morris, Aubrey Weymouth.

The following dates have been selected for the meetings of the Section, during the coming year, all of which will be held in the Engineering Societies Building, 33 West 39th Street, New York, N. Y.: October 15, November 19, and December 17, 1924; and January 14, February 18, March 18, April 15, and May 20, 1925.

Northeastern.—May 17, 1924. Interesting talks on impressions of the Spring Meeting at Atlanta, Ga., were presented by Messrs. P. A. Shaw and Dana M. Wood. They were followed by Mr. L. E. Moore who gave a résumé of the activities of the Affiliated Technical Societies. "The Economic and Industrial Situation in New England as Related to the Cotton Industry" was presented by Maj. Harry C. Meserve, Secretary of the National Association of Cotton Manufacturers. This address was followed by an interesting discussion of the subject. Attendance 38.

Northwestern.—March 28, 1924. "A New Form of Specification for Concrete Proportions" by Mr. F. R. McMillan. The paper was followed by a general discussion of the subject. Attendance 72.

Oklahoma.—April 19, 1924. An informal gathering of the Section was held at 9 A. M. on the occasion of the visit of President Grunsky and Secretary Dunlap, followed by luncheon with the Oklahoma Chapter of the American Association of Engineers and an excursion to places of interest. A business

meeting was held in the evening, at which the following officers were elected: President, F. H. Peckham; First Vice-President, Walter C. Burnham; Secretary-Treasurer, V. V. Long. After addresses by President Grunsky and Secretary Dunlap, a resolution was adopted commending the Board of Direction for the policy of sending the President and Secretary to visit Local Sections. Attendance 14.

Philadelphia.—May 16, 1924. Joint Meeting with the Engineers Club of Philadelphia at which Mr. Harvey W. Corbett of the Russell Sage Foundation, New York, N. Y., presented an illustrated address on "City Replanning". Attendance 150.

June 2, 1924. Secretary John H. Dunlap addressed the meeting on "The Activities of the Parent Society and Some Plans for Future Work". Addresses were also made by other guests of honor. The following officers were elected: President, Charles H. Stevens; Vice-President, Henry J. Sherman; Secretary-Treasurer, George H. Shaw; Directors, Charles Haydock and Arthur G. Singer. Attendance 75.

Portland, Ore.—March 28, 1924. "Traffic Problems in Portland, Ore.," by Mr. J. P. Newell. The Street Car Company's side of the problem was presented by Mr. F. I. Fuller and an illustrated analysis of the traffic problem at street intersections on various bases of traffic density was shown by Mr. J. C. Stevens. Attendance 24.

April 18, 1924. Lecture on "Map Making" was given by Mr. Lewis A. McArthur, of the Pacific Power and Light Company. Attendance 20.

May 7, 1924. Col. C. H. Birdseye, of the U. S. Geological Survey, described his trip down the Colorado River, illustrating his remarks by lantern slides and motion pictures. Attendance 500.

Sacramento.—April 1, 1924. Members of the City Planning Commission of Sacramento were guests of the Section and were addressed by J. C. Boyd, formerly City Engineer of Sacramento and County Surveyor. The following officers were elected: President, C. S. Pope; Second Vice-President, J. Burdette Brown; Secretary, Norwood Silsbee. Attendance 47.

April 29, 1924. Director W. L. Huber of San Francisco, Calif., described the Spring Meeting at Atlanta, Ga., and Charles E. Ashburner, City Manager of Stockton, Calif., addressed the Section on "The Engineer as an Executive". Attendance 28.

May 13, 1924. Col. C. H. Birdseye, of the U. S. Geological Survey, gave an address on the work of the Geological Survey and its recent expedition through the Grand Canyon of the Colorado River. Attendance 78.

May 20, 1924. "Hydro-Power as a By-Product of Agricultural Water Storage," by Mr. Everett N. Bryan of the Division of Water Rights, Department of Public Works of the State of California.

May 27, 1924. A joint luncheon was held with the Public Spirit Club of Sacramento. Maj. U. S. Grant, 3d, Corps of Engineers, U. S. A., addressed the meeting on the "Proposed Ship Canal from San Francisco Bay to Sacramento".

June 17, 1924. Mr. Donald M. Baker, Member of the National Board of Directors of the American Association of Engineers, presented a report of the work accomplished by the Association in the ten years of its existence.

June 24, 1924. "County Surveyors and Their Relationship to the County Board of Supervisors", by Drury Butler, County Surveyor of Sacramento County, followed by a report on the Annual Convention of the Society at Pasadena, Calif., by President Pope.

St. Louis.—March 27, 1924. "River Transportation", by Mr. Carl J. Baer of the Development Service Bureau of the St. Louis Chamber of Commerce. Mr. Baer traced the development and decay of river transportation and outlined investigations which have been made in the development of a new type of river craft. The lecture was followed by discussion of the subject. Attendance 24.

San Diego.—April 10, 1924. "Development of Port Terminal Facilities", by Mr. F. G. White of the Board of State Harbor Commissioners. This interesting talk was followed by a general discussion of the subject led by Commander De Witt C. Webb, U. S. N., Public Works Officer, 11th Naval District. Attendance 16.

San Francisco.—February 11, 1924. A complimentary dinner was given to President Grunsky in the Rose Room of the Palace Hotel, San Francisco, Calif. Attendance 103.

February 19, 1924. President Frank G. White presented his Inaugural Address, outlining the work of the Section. A brief description of the Annual Meeting held in New York in January was given by Director W. L. Huber. "The Bay Crossing Division of the Hetch Hetchy Project" was presented by Nelson A. Eckart, Chief Assistant Engineer of the Hetch Hetchy Project. Following Mr. Eckart's address, M. M. O'Shaughnessy, City Engineer of San Francisco, spoke briefly on the water situation. Attendance 114.

March 21, 1924. Mr. R. R. Woolley of the U. S. Geological Survey described a trip made by himself and party down the Green River Canyon. The lecture was illustrated by colored slides. Mr. Homer M. Hadley of the Portland Cement Association described in detail the effect of the recent Japanese earthquake on buildings, also illustrating his remarks with slides. Attendance 150.

April 15, 1924. Messrs. F. C. Herrmann, Consulting Engineer, of San Francisco, and B. A. Etcheverry of the University of California addressed the meeting on "The Distribution of Assessments for Reclamation and Flood Control Works of the Sacramento and San Joaquin Drainage District." Attendance 57.

Syracuse.—May 5, 1924. "Taxation", by Mark Graves, State Tax Commissioner. The following officers were elected: President, J. X. Cohen; Vice-President, Guy Moulton; Director, George D. Williams.

Virginia.—March 28, 1924. At a Joint Meeting of the Virginia Sections of the Society, the American Society of Mechanical Engineers, and the American Institute of Electrical Engineers, at Lynchburg, Va., Mr. John C. Hoyt of the U. S. Geological Survey presented slides and motion pictures of the

recent survey of the Colorado River. After luncheon at the Y. M. C. A., "The Development of the Dan River Cotton Mills" was discussed by Mr. George W. Robertson, of Danville, Va. Mr. Robertson was followed by Mr. G. B. Nichols, of New York, who spoke on "Central Heating Plants", illustrating his remarks by slides. Mr. R. R. Talliaferro showed the need for controlling humidity in various industrial plants and described methods of effecting this control. These papers were discussed informally with much interest. After a dinner at the Oakwood Country Club, Mayor Fred Harper of Lynchburg addressed the meeting briefly on the opportunity of engineers in public service and Mr. Allen J. Saville, of Richmond, spoke on "The Location of Industrial Plants in Relation to the Balance of the Community".

Student Chapters

Cornell University. February 26, 1924. Illustrated talk on municipal engineering works in the City of Rochester by John F. Skinner, M. Am. Soc. C. E., Deputy City Engineer. Attendance about 40.

March 24, 1924. Twenty-third Annual Banquet of the School of Civil Engineering. Addresses by F. A. Barnes, M. Am. Soc. C. E., Director of the School of Civil Engineering, on the qualities which make for engineering success; by Dean D. S. Kimball, of the Engineering College, on education; and by F. C. Wight, M. Am. Soc. C. E., Editor of *Engineering News-Record*, on the present status of engineers and engineering. Attendance more than 170.

April 23, 1924. Address by Herbert H. Bassett, M. Am. Soc. C. E., on "The Experience of One Structural Engineer". Attendance about 45.

May 7, 1924. Inspection trip to visit engineering works of Rochester—sanitary works, highways, barge canal, bridges, subways. Included luncheon accompanied by short talks. All as guests of the Rochester Section. Attendance more than 30.

May 22, 1924. Illustrated talk by Mr. Hubbard, of the Eastern Clay Products Association, on the "History and Manufacture of Vitrified Clay Pipe". Officers for the ensuing year were elected as follows: President, Clarence G. Eaton; Vice-President, G. T. Larson; Secretary, Richard E. Bonyun; Treasurer, Kendall K. Hoyt.

May 26, 1924. By courtesy of the Rochester Section, the Annual Joint Dinner of the Rochester Technical and Engineering Societies was attended by several student members.

Iowa State College. Summary of past year's work: Smoker for Faculty and students especially Freshmen. A new constitution adopted. Prepared for the annual engineering demonstrations, the winning display covering a power project and highway construction. Regular meetings covered topics on highway construction and relation of students to college and society activities. Officers for the next year, as follows: President, Howard Olson; Vice-President, Ed. Olson; Secretary, E. A. Vaubel; Treasurer, P. K. Miller.

Lafayette College. Meetings during the present year have been addressed for the most part by outside engineers. Inspection trip about New York, N. Y., by Seniors.

Montana State College. Meetings during the past year covered the subjects of railways and cement by outside speakers, also several by Faculty members. Officers for the coming year, as follows: President, John Conway; Vice-President, Morris Griffith; Delegate to M. S. C. Engineers' Council, Philip Holgren; Secretary, Elton Haines; Treasurer, David DeLap.

New York University. Officers for the coming year, as follows: President, Herbert Thornblade; Vice-President, Raymond Murphy; Secretary, Walter Willig; Treasurer, Charles Clos.

Pennsylvania State College. The Chapter plans to award annual prizes under the following rules:

"The Pennsylvania State College Student Chapter of the American Society of Civil Engineers offers two cash prizes, the first of ten dollars, the second of five dollars, open to competition each year for all students taking the courses in Civil or in Sanitary Engineering.

"Any student desiring to compete for these prizes shall submit a paper which will not require more than twenty minutes for its presentation before the Society.

"The paper shall be original and of a technical character or some topic in which the student is interested or in which the student has had some experience. The paper may be illustrated by sketches.

"Any student desiring to present a paper at any meeting shall inform the Secretary as to the subject of his paper at least one week previous to the time of the meeting. This does not make it obligatory, however, that the paper shall be delivered at the next meeting, if in the judgment of the Program Committee it is desirable to postpone it until a later date.

"Papers may be presented at any meeting except the last regular meeting of the college year. A copy of the paper submitted in the competition shall be presented to the judges at the time of presentation. The judges shall be two members of the faculty of the Department of Civil Engineering to be selected by the rules committee."

Officers for the entering year are, as follows: President, W. P. Atkinson; Vice-President, O. C. Diehl; Secretary, G. R. Smith; Treasurer, A. E. Hill.

Rensselaer Polytechnic Institute. December 13, 1923. Speaker, L. D. Ricketts, M. Am. Soc. C. E.; subject, "The Ajo Copper Mine," illustrated by motion pictures. Attendance about 250.

February 26, 1924. Illustrated lecture on city planning. Speaker, Harold M. Lewis, M. Am. Soc. C. E. Attendance about 150.

April 22, 1924. Illustrated lecture on "The Japanese Earthquake and Its Effect on Engineering Structures". Speaker, J. W. Doty, M. Am. Soc. C. E. Attendance about 200.

University of Colorado. February 20, 1924. A talk by Dr. George Reynolds of the English Literature Department of the University on the subject "Books as Friends".

March 31, 1924. Banquet of the Colorado Section to President Grunsky. Mr. Grunsky spoke on the Colorado River Project. About 30 student members in attendance.

May 14, 1924. After a hotly contested election, the following are officers for the coming year; President, Robert W. Atha; Vice-President, Walter West; Secretary, Arnold Condron; Treasurer, Paul Davis.

University of North Carolina. April 2, 1924. William Cain, M. Am. Soc. C. E., Professor Emeritus, spoke on "Requisite of Success".

April 15, 1924. Address by George C. Whipple, M. Am. Soc. C. E., Professor of Sanitary Engineering, Harvard University on hygiene and sanitary engineering.

Virginia Polytechnic Institute. May 21, 1924. Address on municipal engineering, by Capt. F. R. Lyons, U. S. A.

West Virginia University. March 7, 1924. Discussion by student members on reclamation, setting of concrete, and failure of concrete reservoir and swimming pool. Attendance 28.

March 14, 1924. Address by G. S. Frost, Assoc. M., Am. Soc. C. E., on manufacture of clay pipe. Attendance 32.

March 21, 1924. Discussion by student members on aerial photography, ancient and modern engineering, pollution by trade wastes, and measurement of impact on highways and railways. Attendance 27.

March 28, 1924. Discussion by student members on bridge construction, concrete railway ties, calculation of concrete volumes, break in penstock from water-hammer, and road grading. Attendance 27.

April 4, 1924. Address by T. S. Johnson, Assoc. M. Am. Soc. C. E., Professor of Civil Engineering, Denison University. Summary of engineering articles by student members covering retaining walls, type of anchorage for suspension bridge, and overcoming local engineering conditions. Attendance 29.

April 11, 1924. Papers by student members on engineering salaries, making better concrete, reinforced concrete piles, and failure of Gleno Dam. Attendance 23.

April 16, 1924. Members presented discussion covering gravel roads, failure of concrete building, pile-driving, graphical mathematics, and highway bridge protection from vehicles. Attendance 29.

April 25, 1924. Address by H. O. Cole, M. Am. Soc. C. E., covering aims and requirements of engineering. Attendance 25.

May 2, 1924. Papers by members on hydro-electric plant, stadium of West Virginia University, Moffat Tunnel, coffer-dam construction, and estimating for highways. Attendance 28.

May 9, 1924. Members spoke on Alaskan railways, activated sludge plant, concrete in sea water, reclamation service, and Alaskan Highway Commission. Attendance 30.

May 16, 1924. Discussions by student members on concrete arch failure, Muscle Shoals, retaining walls, engineering in oil field. Attendance 25.

May 23, 1924. Papers by members on water supply for Memphis, Tenn., water supply for Tulsa, Okla., culverts for road work, culvert construction. Attendance 27.

Worcester Polytechnic Institute. April 1, 1924. Address by H. C. Boyden, M. Am. Soc. C. E., on qualities of cement and concrete. Civil Engineer's handbook awarded to L. A. Burgess, 1925, as prize for best solution of railway problem involving design of one mile of line. Officers for the ensuing year, as follows: President, L. B. Martin; Vice-President, H. B. Smith, Secretary, L. P. Goucher; Treasurer, R. H. Webster.

Yale University. March 25, 1924. Address by H. C. Boyden, M. Am. Soc. C. E., on concrete.

Engineering Societies Library

The services of the Engineering Societies Library are available to all members who wish searches, copies, translations, etc., or advice on technical literature. A collection of modern books is also available for loan to members in North America, at moderate rentals. Correspondence should be addressed to the Director, Engineering Societies Library, 29 West 39th Street, New York, N. Y., who will gladly give information concerning the charges for the various kinds of work. A more comprehensive statement in regard to this matter will be found on pages 49 and 50 of the Year Book for 1924.

Book Notices*

(April 1 to June 30, 1924)

Alfred Yarrow, His Life and Work. By Eleanor C. Barnes (Lady Yarrow). N. Y., Longmans, Green & Co.; Lond., Edward Arnold & Co., 1923. 328 pp., illus., port., 9 x 6 in., cloth. \$3.50.

Lady Yarrow's readable biography of the great English shipbuilder recounts the development of his business from a little yard for repairing river steamboats to the great works on the Clyde. It describes the work of the firm in improving marine engineering, also Sir Alfred's public services and war activities.

Alignment Charts for Engineers and Students. By W. J. Kearton and George Wood. Lond., Charles Griffin & Co.; Phila., J. B. Lippincott Co., 1924. 220 pp., diagrams, charts, 9 x 6 in., cloth. \$6.50.

This is a textbook for students of nomography and a reference book for engineers. It states the principles that underlie the construction and operation of nomograms, gives directions for their practical construction and includes thirty-five charts which represent some of the more important engineering formulas.

L'Analyse Situs et la Geometrie Algebrique. By S. Lefochetz. Paris, Gauthier-Villars et Cie., 1924. 154 pp., 10 x 6 in., paper. 20 francs.

This monograph forms one of a series on the theory of functions. It is partly based on investigations carried out under the auspices of the American Association for the Advancement of Science.

Calculus of Observations: A Treatise on Numerical Mathematics. By E. T. Whittaker and G. Robinson. N. Y., D. Van Nostrand Co., 1924. 395 pp., 9 x 6 in., cloth. \$6.00.

This book represents the lectures given in the Mathematical Laboratory of the University of Edinburgh during the past ten years. It discusses such problems as interpolation, central-difference formulas, the numerical solution of algebraic and transcendental equations, numerical integration and summation, frequency distributions, the method of least squares, practical Fourier analysis, the smoothing of data, correlation, the search for periodicities, and the numerical solution of differential equations. The methods given are exclusively arithmetical.

Construction of Roads and Pavements. By Thomas R. Agg. Third Edition. N. Y., McGraw-Hill Book Co., 1924. 519 pp., illus., diagrams, tab., 9 x 6 in., cloth. \$4.00.

This book is intended for those desirous of a concise presentation of approved practice in road and pavement construction and of the principles involved, suitable for use as a textbook or a work of reference. This new edition adds material dealing with the design of rural highways and of pavement foundations, concrete surfaces, bituminous materials, economic comparisons of roadway surfaces, and the testing of road materials.

Cost Accounting Fundamentals. By L. T. Konopak. N. Y., Ronald Press Co., 1924. 235 pp., 9 x 6 in., cloth. \$3.00.

The aim of the present work is that the business executive may grasp fully the significance of cost accounting, and the cost accountant perceive the ultimate purpose of his work. The discussion is confined to the larger, more significant facts based on conditions found in factories of medium size.

* The statements made in these notices are taken from the books themselves, and this Society is not responsible for them. Unless otherwise specified, the books in this list have been donated by publishers.

Drang und Zwang; Vol. I. By Aug. Föppl and Ludwig Föppl. Second Edition. Munich u. Berlin, R Oldenbourg, 1924. 359 pp., diagrams, 10 x 7 in., paper. \$3.36.

This book is a treatise on the theory of elasticity and the strength of materials, intended especially for engineers who already have an acquaintance with the subject and who are professionally interested in research. The new edition has been corrected throughout and the results of recent investigations have been included.

Einflüsse auf Beton. By A. Kleinlogel. Berlin, Wilhelm Ernst & Sohn, 1924. 331 pp., 9 x 6 in., paper. \$3.25.

The important question of the chemical, mechanical, and similar actions of acids, alkalis, oils, vapors, waters, earths, and stored materials on concrete, reinforced concrete, and mortars are treated in this book. Methods for preventing these actions, or minimizing them, are also considered. All the available information is summarized and arranged alphabetically so that it is readily available to the practical worker in cement. The book will be useful to all who contemplate the construction of cement tanks and containers for chemicals, warehouses, etc.

Elementary Hydraulics. By F. W. Medaugh. N. Y., D. Van Nostrand Co., 1924. 144 pp., diagrams, tab., 8 x 5 in., cloth. \$2.00.

This is a textbook for an elementary course, in which some parts of the subject are presented by methods radically different from those generally used. The author is instructor in Civil Engineering in the Johns Hopkins University.

Elements of Water Bacteriology With Special Reference to Sanitary Water Analysis. By Samuel C. Prescott and Charles-Edward A. Winslow. Fourth Edition. N. Y., John Wiley & Sons, 1924. 211 pp., tab., 9 x 6 in., cloth. \$2.25.

This work, first published nearly twenty years ago, attempts to present an account of the best American practice in this field of sanitary science, with sufficient completeness to be of value to the expert, and with freedom from undue technicality that the layman may read it also. In the present edition matter now out of date has been omitted or condensed and attention has been concentrated upon the procedures that have been proven. The bibliography has been extended to June, 1923.

Estimating. By Edward Nichols. Chic., American Technical Society, 1920. 107 pp., illus., diagrams, tab., 8 x 5 in., cloth. \$1.50.

A concise description of correct methods of determining costs and checking them, suited for home study and adapted to the needs of the small contractor is given in this text. It also includes a typical estimate for a suburban dwelling, but does not treat of steel structures.

Estimating Building Costs and Appraising Buildings. By Frank E. Barnes. N. Y., McGraw-Hill Book Co., 1924. 822 pp., illus., tab., 7 x 5 in., fabrikoid. \$5.00.

This book is intended to aid the contractor or estimator in determining the amount of labor required for various building operations, to furnish the prices of labor and materials which he will require to check his estimates, and to supply full information about the present cost of replacing buildings built between 1890 and 1923. The author is the Supervising Engineer of Building Valuation of the New York Central Lines.

Handbook of Fire Protection. By Everett U. Crosby, Henry A. Fiske, and H. Walter Forster. Seventh Edition. N. Y., D. Van Nostrand Co., 1924. 899 pp., illus., diagrams, 7 x 5 in., fabrikoid. \$4.00.

This is a concise, reliable account of approved practice. The general causes of fire and the special hazards of various industries are explained, the spread of fire and the lessening of danger by structural means are discussed, special information being given on proper construction for special purposes.

Home Sewage Disposal. By W. A. Hardenbergh. Phila., J. B. Lippincott Co., 1924. 274 pp., illus., 9 x 6 in., cloth. \$2.50.

This book is intended for health officers, engineers, and others interested in sewage disposal for single dwellings, small communities, and institutions, and for students of the principles and problems of sewage disposal in relation to health work.

Hütte des Bauingenieurs. By Akademischer Verein Hütte. Berlin, Wilhelm Ernst & Sohn, 1924. 1340 pp., diagrams, tab., 7 x 5 in., cloth. \$3.30.

This is a separate issue of the third volume of the Twenty-Fourth Edition of the well-known pocket-book, "Hütte". The book is divided into seventeen sections, treating of surveying, statics, earthwork, reinforced concrete structures, steel structures, heating and ventilating,

factory buildings, building machinery, hydraulic engineering, hydraulic power plants, dams, highway engineering, city planning, water supply, sewerage engineering, railroads, and bridges. Each section is the work of a specialist.

Interest as a Cost. By Clinton H. Scovell. N. Y., Ronald Press Co., 1924. 254 pp., 8 x 5 in., cloth. \$2.50.

The author considers interest a proper part of cost, and his book is written to present the reasons for this conclusion. The theory supporting his position is given, and the attitude of those in favor of it are set forth. The various objections to this view of interest are also given and answered specifically. The book should prove of interest to all students of cost accounting.

International Cities and Town Planning Exhibition. English Catalogue. Jubilee Exhibition, Gothenberg, Sweden. 389 pp., illus., plans, 10 x 7 in., paper. \$2.00.

The Jubilee Exhibition at Gothenberg in 1923 brought together an interesting collection of data on town planning from eighteen countries, and this catalogue will be of interest to architects and engineers, because of its historical and descriptive notes and its profuse illustrations. The latter include ancient and modern plans and photographs, showing the development of streets and housing all over the civilized world.

Line Charts for Engineers. By W. N. Rose. (Directly-Useful Technical Series.) N. Y., E. P. Dutton & Co., 1923. 95 pp., tab., 9 x 5 in., cloth. \$3.00.

This book emphasizes the possibilities of charts as aids to calculation and shows how charts may be most easily made from formulas. Little knowledge of mathematics is required. The examples are taken from engineering practice.

Lumber and Its Uses. By R. S. Kellogg. Third Edition, Revised by F. H. Smith. N. Y., U. P. C. Book Co., 1924. 370 pp., illus., tab., map, 9 x 6 in., cloth. \$4.00.

An account is given of the properties and uses of the principal American species of wood which are manufactured into lumber. The properties of wood, and the methods of grading and measuring are described. There are chapters on seasoning, preserving and painting, on paving and flooring, on fire resistance, and prices of lumber. A large part of the book is given to the uses of lumber and to the properties and uses of the principal kinds of timber.

Manual of Engineering Drawing. By Thomas E. French. Third Edition, Revised and Enlarged. N. Y., McGraw-Hill Book Co., 1924. 409 pp., illus., diagrams, 9 x 6 in., cloth. \$3.00.

This is a textbook with a collection of tested problems, grouped and graded, and following current engineering practice. The new matter in this edition includes chapters on Working Drawings, Perspective, and Charts.

Portland Cement Prices. By Henry P. Willis and John R. B. Byers. N. Y., Ronald Press Co., 1924. 123 pp. charts, tab., 8 x 5 in., cloth. \$1.25.

The authors of this work who are respectively Professor of Banking in Columbia University and Instructor in Economics in the College of the City of New York, have made a careful examination of price quotations and other data, which are presented herein, together with their conclusions. The book is a survey of the position, history, and elements of the present price of Portland cement, intended to explain the manner in which prices are determined, changed, and regulated by economic conditions, and to apply tests which may serve as a basis for a judgment of their character.

Practical Calculus for Home Study. By Claude Irwin Palmer. N. Y., McGraw-Hill Book Co., 1924. 443 pp., diagrams, port., tab., 8 x 5 in., fabrikoid. \$3.00.

This volume has been prepared in response to many requests for a simple, practical treatment of the ideas considered in the calculus. The book should give the man with limited mathematical training a thorough understanding of what the calculus is, when to use it and how; it should also be useful to the engineer as a reference and review book, because of the large number of solutions given.

Practical Mathematical Analysis. By H. von Sanden. N. Y., E. P. Dutton & Co., [1924]. 195 pp., illus., diagrams, tab., 9 x 6 in., cloth. \$4.50.

Professor von Sanden's treatise on mathematical analysis lays particular stress on methods which have very general application, so that his work will be useful to students of engineering as an extension of their mathematical textbooks and lectures. Much more attention is given to graphical methods, to the slide rule and to calculating machines than is customary in books on mathematics.

Principles of Irrigation Engineering With Special Reference to South Africa. By Francis Edgar Kanthack. Lond. and N. Y., Longmans, Green & Co., 1924. 299 pp., illus., diagrams, tab., 9 x 6 in., cloth. \$9.00.

This volume represents a course of lectures on irrigation and water supply delivered at the University of Cape Town. It is intended to present the main principles that underlie irrigation engineering and thus serve as an introduction to the standard American works on the subject.

Problem of the Obelisks. By R. Engelbach. N. Y., George H. Doran Co., 1923. 134 pp., illus., 9 x 6 in., cloth. \$4.00.

This work, by the Chief Inspector of Antiquities, Upper Egypt, is a popular account of his researches on the problem as to the method by which the obelisks were extracted and erected. It also contains a description of the huge unfinished obelisk lying in the quarry at Aswan.

Reinforced Concrete and Masonry Structures. By George A. Hool and W. S. Kinne. N. Y., McGraw-Hill Book Co., 1924. 786 pp., illus., diagrams, tab., 9 x 6 in., cloth. \$6.00.

This volume is the work of a number of specialists, who have combined to produce a thorough description of modern methods of design and construction, suited for use as a reference book by students and engineers.

Standard Practical Plumbing. By R. M. Starbuck. Seventh Edition. N. Y., Norman W. Henley Publishing Co., 1924. 432 pp., diagrams, 9 x 6 in., cloth. \$3.50.

This book is intended as a textbook for apprentices and beginners as well as a work of reference for plumbers. The author covers house drainage and water supply, describing clearly and practically the methods approved at the present time. The present edition is revised and enlarged.

Statique et Resistance des Materiaux. By Paul Montel. Paris, Gauthier-Villars et Cie., 1924. 273 pp., 10 x 6 in., paper. 30 francs.

This new work on statics and the strength of materials follows the course given by its author at the Ecole des Beaux-Arts. The author has adopted geometrical methods for the demonstrations and graphic methods for calculations, believing that they will be more easily comprehended.

Steel and Timber Structures. By George A. Hool and W. S. Kinne. N. Y., McGraw-Hill Book Co., 1924. 695 pp., illus., diagrams, tab., 9 x 6 in., cloth. \$6.00.

This volume is a reference book for engineers and students, and is intended to cover thoroughly the design and construction of the principal types of modern structures.

Strength of Materials. By James E. Boyd. Third Edition. N. Y., McGraw-Hill Book Co., 1924. 430 pp., diagrams, tab., 9 x 6 in., cloth. \$3.50.

This book is a textbook for the college student who has studied integral calculus and theoretical mechanics, and is intended to give him a grasp of the physical and mathematical ideas underlying the mechanics of materials, and to fit him for designing machines and structures.

Surveying Problems. By Thomas Bryson. Wigan, England, Thomas Wall & Sons, 1923. 155 pp., illus., diagrams, tab., 8 x 5 in., cloth. 5s.

This guide is intended for students in mine surveying. Suggestions are given as to the scope of the study which should be pursued and a large number of questions from recent examinations are also given, with full solutions.

Textbook of Geology; Pt. 2: Historical Geology. By Charles Schuchert. Second Edition, Revised. N. Y., John Wiley & Sons, 1924. 724 pp., illus., map, 9 x 6 in., cloth. \$4.50.

This new edition has been thoroughly revised. It is intended for beginners in geology, is very extensively illustrated, and is equipped with many references for collateral reading.

Textbook of Petroleum Production Engineering. By Lester Charles Uren. N. Y., McGraw-Hill Book Co., 1924. 657 pp., illus., diagrams, charts, tab. 9 x 6 in., cloth. \$6.00.

This textbook has been prepared for students of specialized courses in petroleum engineering and covers the technology of oil field development and petroleum production, including the general engineering aspects of production, but omits the matters of exploration for new deposits and of refining.

Trattato Completo di Idraulica Teorica e Sperimentale, Vol. 3; Azioni-Reazioni e Resistenza dei Fluidi. By Donato Spataro. Milano, Ulrico Hoepli, 1924. 985 pp., illus., diagrams, tab., 9 x 7 in., paper. 80 lire.

This is the final volume of an unusually comprehensive treatise on theoretical and experimental hydraulics, by the Professor of Hydraulics in the Royal School of Engineers at Palermo. The present volume is concerned with the reactions and resistance of fluids, especially air and water.

Valuation of Oil and Gas Lands. By Robert Wesley Brown. N. Y., McGraw-Hill Book Co., 1924. 215 pp., illus., diagrams, tab., 9 x 6 in., cloth. \$3.00.

The purpose of this book is to present, in as simple a manner as is consistent with so technical a subject, the principles that underlie the valuation of oil and gas lands. The book is intended for accountants, lawyers, engineers, geologists, operators, and others interested in the subject. One chapter is devoted to valuation for taxation.

Additions to the Reading Room

Everybody's Money. By Ernest McCullough, M. Am. Soc. C. E. N. Y. and Lond., G. P. Putnam's Sons, 1923. 175 pp., 7½ x 5 in., cloth. \$1.75. (Donated by the Author.)

This book has been prepared to show voters just what money is, how it came into being, how it has been misunderstood, and what should be done to make it a useful servant.

Current Civil Engineering Literature

Key to Abbreviated References to Publications Indexed*

| Abbreviated References. | Publication. | Place. |
|-----------------------------|---|--------------|
| Am. C. Inst..... | American Concrete Institute, Proceedings (Y.) | Detroit |
| A. I. E. E..... | American Institute of Electrical Engineers Journal (M.) | New York |
| A. R. E. A..... | American Railway Engineering Association, Proceedings (Y.) | Chicago |
| A. S. T. M..... | American Society for Testing Materials, Proceedings (Y.) | Philadelphia |
| Am. Soc. C. E..... | American Society of Civil Engineers, Proceedings (M.) | New York |
| Am. Soc. Mun. Impvts..... | American Society for Municipal Improvements, Proceedings (Y.) | New York |
| Am. W. W. Assoc..... | American Waterworks Association, Journal (Bi-M.) | Baltimore |
| Am. Wood Pres. Assoc..... | American Wood Preservers Association, Proceedings (Y.) | Chicago |
| Ann. P. et C..... | Annales des Ponts et Chaussées (Bi-M.) | Paris |
| Ann. T. P. Belg..... | Annales des Travaux Publics de Belgique (Bi-M.) | Brussels |
| Assoc. Ing. Gand..... | Annales de l'Association des Ingénieurs sortis des Ecoles Spéciales de Gand (Q.) | Ghent |
| Bost. Soc. C. E..... | Boston Society of Civil Engineers, Journal (M.) | Boston |
| Can. Engr..... | Canadian Engineer (W.) | Toronto |
| Cem. Engr..... | Cement and Engineering News (M.) | Chicago |
| Cornell C. E..... | Cornell Civil Engineer (M.) | Ithaca |
| Dock & Harbour..... | Dock and Harbour Authority (M.) | London |
| Eng..... | Engineering (W.) | London |
| Eng. & Contr..... | Engineering and Contracting (W.) | Chicago |
| Eng. Inst. Can..... | Engineering Institute of Canada, Journal (M.) | Montreal |
| Eng. N. R..... | Engineering News-Record (W.) | New York |
| Engrs. Soc. Pa..... | Engineers' Society of Pennsylvania, Journal (M.) | Harrisburg |
| Engrs. Soc. W. Pa..... | Engineers' Society of Western Pennsylvania, Journal (M.) | Pittsburgh |
| Engr..... | Engineer (W.) | London |
| Engrs. & Eng..... | Engineers and Engineering, Engineers' Club of Philadelphia (M.) | Philadelphia |
| Gen. Civ..... | Le Génie Civil (W.) | Paris |
| Gesund. Ing..... | Gesundheits Ingenieur (W.) | Munich |
| Inst. C. E..... | Institution of Civil Engineers Minutes of Proceedings (Q.) | London |
| Inst. Mun. & Co. Engrs..... | Institution of Municipal and County Engineers, Journal (W.) | London |
| Int. Ry. Cong. Assoc..... | International Railway Congress Association, Bulletin (M.) | Brussels |
| Land. Arch..... | Landscape Architecture (M.) | Harrisburg |
| Mech. Eng..... | Mechanical Engineering (M.) Journal of the American Society of Mechanical Engineers | New York |
| Mil. Engr..... | Military Engineer (M.) | Washington |
| Min. & Metal..... | Mining and Metallurgy (M.) American Institute of Mining Engineers | New York |
| Mun. & Co. Eng..... | Municipal and County Engineering (M.) | Indianapolis |
| N. E. W. W. Assoc..... | New England Water Works Association, Journal (M.) | Boston |
| N. Y. R. R. Club..... | New York Railroad Club, Proceedings (M.) | Brooklyn |
| Oest. Ing. Arch. Ver..... | Oesterreichischer Ingenieur und Architekten Verein, Zeitschrift (F.) | Vienna |
| Power..... | Power (W.) | New York |
| Rev. Gen..... | Revue Générale des Chemins de Fer (M.) | Paris |
| Ry. Age..... | Railway Age (W.) | New York |
| Ry. Eng. & Main..... | Railway Engineering and Maintenance (M.) | Chicago |
| Ry. Rev..... | Railway Review (W.) | Chicago |
| Schw. Bauz..... | Schweizerische Bauzeitung (W.) | Zurich |
| Sci. Am..... | Scientific American (M.) | New York |
| Soc. Ing. Civ. Fr..... | Société des Ingénieurs Civils de France, Mémoires et Comptes Rendus (Q.) | Paris |
| Ver. deu. Ing..... | Verein deutscher Ingenieure, Zeitschrift (W.) | Berlin |
| West. Ry. Club..... | Western Railway Club, Proceedings (M.) | Chicago |
| West. Soc. Engrs..... | Western Society of Engineers, Journal (M.) | Chicago |
| Zeit. Bau..... | Zeitschrift für Bauwesen (Q.) | Berlin |
| Z. d. Bauer..... | Zentralblatt der Bauverwaltung (W.) | Berlin |

* Y = Yearly; Q = Quarterly; M = Monthly; F = Fortnightly; W = Weekly.

A. Applied Sciences**a. Processes of Calculation****2. Graphical and Nomographical Processes**

Ueber die mathematischen Grundlagen der Nomographie.* (On the Mathematical Bases of Nomography.) L. Bieberbach. Ver. deu Ing. May 17, '24.

3. Stresses and Strains

Spot-Welded Girders and Columns Tested for Strength.* L. B. Tuckerman. Eng. N. R. June 5, '24.

B. Applied Mechanics**a. Mechanics of Solids****1. Processes of Measurement**

Messen von Schwingungen und Drehmomenten mittels des Oszillographen.* (Measurement of Oscillations and Moments of Rotation by Means of the Oscillograph.) R. Elsässer. Ver. deu Ing. May 17, '24.

2. Elastic Solids

Der Schubmittelpunkt.* (The Center of Shear.) Rob. Maillart. Schw. Bauz. Mar. 8, '24.

3. Jointed Systems

La Détermination de la Résistance des Systèmes Hyperstatiques.* (Computation of the Resistance of Elastic Structures.) Henri Barth. Gen. Civ. May 17, '24.

Wirtschaftliche Anordnung von Tragkonstruktionen.* (Economic Arrangement of Supporting Structures.) Franz Glaser. Oest. Ing. Arch. Ver. Apr. 4, '24.

4. Riveted Systems

Slips of Riveted Joints in Single and Repetitive Loading.* David H. Blakelock. Eng. N. R. June 5, '24.

Etude de la continuité dans un réseau rectangulaire de poutres et de piliers.* (Study of Continuity in a Rectangular Framework of Beams and Pillars.) Henri Bordier. Gen. Civ. Mar. 15, '24.

Die Beanspruchung der Nietverbindungen bei Eisenkonstruktionen.* (The Stresses of Riveted Joints in Steel Structures.) Müllenhoff. Z. d. Bauver. Dec. 19, '23.

Zur Berechnung der Riegel und Prosten von Eisenfachwänden.* (Calculation of the Cross Bars and Uprights of Steel Partition Walls.) Richard Sonntag. Z. d. Bauver. May 14, '24.

6. Heterogeneous Solids (Reinforced Materials)

Perfectionnements de la Règle Logarithmique, Système Rieger, pour le Calcul des Constructions en Béton Armé.* (Improvements in the Rieger System Logarithmic Rule for Designing Reinforced Concrete Structures.) Gen. Civ. Apr. 5, '24.

Les Déformations du Béton Armé Soumis à L'Extension.* (The Deformations of Reinforced Concrete Subjected to Stretching.) Henry Lossier. Gen. Civ. May 10, '24.

b. Hydraulics**2. Physical Hydraulics (Orifices, Pipes, Channels, Waves)**

The Influence of Silt on the Velocity of Water Flowing in Open Channels.* Arthur Burton Buckley. Inst. C. E. 1922-23 Pt. 2.

Modern Pumping Engines in Holland.* Eng. Apr. 4, '24.

Reconditioning Wood Stave Pipe Line.* J. B. Holdercroft. Can. Engr. Apr. 22, '24.

New Method of Computing Backwater and Drop-Down Curves.* Alva G. Husted. Eng. N. R. Apr. 24, '24.

The Design of Works on Open Channels.* F. V. Elsdon. Engr. Apr. 25, '24.

Shape of Entrance Affects Flow Through Culvert Pipe.* Ry. Eng. & Main. May, '24.

3. Industrial Hydraulics

The Clarion River Hydro-Electric Development. Charles B. Hawley. Am. W. W. Assoc. Mar., '24.

The Economics of Hydro-Electric Development.* Daniel W. Mead. Am. Soc. C. E. Apr., '24.

Comparative Tests on Experimental Draft-Tubes.* Discussion. William J. Rheingans, Lewis F. Moody, H. Birchard Taylor, J. F. Roberts, D. J. McCormack and E. S. Lindley. Am. Soc. C. E. Apr., '24.

Musquash Hydro-Electric Development.* F. B. Casey. Can. Engr. Apr. 8, '24.

Power Requirements and Sources of Supply of New England.* Chas. T. Main and others. Bost. Soc. C. E. May, '24.

Advisory Board Submits Report on New England Power. Eng. N. R. May 1, '24.

Isle Maligne Hydro-Electric Development.* J. P. Chapleau. Can. Engr. May 6, '24.

Davis Bridge Development of the New England Power Company.* Power May 13, '24.

Power Development at Seal Cove, Nfld.* Can. Engr. May 20, '24.

Power Developments on the St. Maurice River.* L. H. Burpee. Can. Engr. May 27, '24.

Penstock Manifolds Designed to Simplify Stresses.* H. L. Doolittle and Chester W. Lerner. Eng. N. R. June 12, '24.

Costs of Water Supply Mains of Four Different Materials.* (Abstract of paper read before Am. Water Works Assoc.) Eng. N. R. June 19, '24.

Determination of Internal Leakage in Centrifugal Pumps.* A. F. Sherzer. Eng. N. R. June 19, '24.

Essais d'Étanchéité de la Galerie sous Pression de l'Usine Electrique d'Amsteg, des Chemins de Fer Suisses.* (Tests of the Water-Tightness of the Pressure Tunnel of the Amsteg Electric Plant of the Swiss Railroads.) Gen. Civ. Mar. 1, '24.

Exemples d'installations hydrauliques d'accumulation et de pompage en Suisse, en Italie et en France.* (Examples of Hydraulic Storage and Pumping Plants in Switzerland, Italy and France.) Gen. Civ. Mar. 1, '24.

Experimentelle Untersuchung der Wasserströmung durch ein rotierendes Zellen-Kreiselpump.* (Experimental Investigation of the Flow of Water in a Rotating Centrifugal Pump.) Heinrich Oertli. Schw. Bauz. May 17, '24.

- Die Wasserkräfte in Niederländisch-Indien.* (Water Powers in the Dutch East Indies.) E. Mattern. Z. d. Bauver. Jan. 30, '24.
- Statistisches, Wirtschaftliches und Gesetzliches über den Ausbau der österreichischen Wasserkräfte. (Statistics, Economics, and Laws upon the Development of Austrian Water Power.) Karl Naehr. Ver. deu. Ing. Mar. 8, '24.
- Mittlere Isar-Werke. Walchensee-Werk. (Middle Isar Plant. Walchensee Plant.) Kronenfeldt. Oest. Ing. Arch. Ver. Mar. 21, '24.
- Das Erste Donaukraftwerk.* (The First Danube Power Plant.) Wilhelm Wieser. Oest. Ing. Arch. Ver. Mar. 21, '24.
- Die Wasserleitungskraftwerke Lunz-Gaming-Kienberg.* (The Lunz-Gaming-Kienberg Water-Main Power Plant.) Ed. Bodenseher. Oest. Ing. Arch. Ver. Mar. 21, '24.
- Die Wasserkräfte Jugoslawiens.* (The Water-Powers of Jugo-Slavia. Stephan Szavits-Nossan. Oest. Ing. Arch. Ver. March 21, '24.
- Vom Bau des Walchenseekraftwerkes.* (On the Construction of the Walchensee Power Plant.) Reissermayer. Oest. Ing. Arch. Ver. Mar. 21, '24.
- Schwedens Wasserkräfte und deren Ausnutzung.* (Sweden's Water Powers and Their Utilization.) F. Vilh. Hansen. Ver. deu. Ing. Apr. 5, '24.
- Die Turbinen der Raanaasfoss-Wasserkraftanlage. Norwegen.* (The Turbines of the Raanaasfoss Hydraulic Power Plant, Norway.) Hallgrim Thoresen. Ver. deu. Ing. Apr. 12, '24.
- Die Wasserturbinen auf der Jubiläumsausstellung in Gothenburg, 1923.* (Hydraulic Turbines at the Jubilee Exposition at Gothenburg, 1923.) H. Munding. Ver. deu. Ing. Apr. 12, '24.
- Fortschritte im Turbinenbau nach dem Weltkriege.* (Progress in Turbine Building Since the World War.) Carlos Schmittner. Ver. deu. Ing. Apr. 12, '24.
- Neues über Turbinen-Abnützungen und automatische Entsandungs-Anlagen.* (New Data on Turbine Deterioration and Automatic Sand Removing Plants.) H. Dufour. Schw. Bauz. Serial beginning Apr. 12, '24.
- Zwei moderne Turbinenanlagen.* (Two Modern Turbine Plants.) R. Hofmann. Ver. deu. Ing. Apr. 19, '24.
- Versuchsergebnisse von Storek-Kaplanturbinen.* (Experimental Results with the Storek-Kaplan Turbine.) Hans Mikyska. Ver. deu. Ing. Apr. 26, '24.
- Neuere Wasserturbinenanlagen in Japan.* (Modern Water Turbine Plants in Japan.) J. Moser. Schw. Bauz. May 10, '24.
- Das Holzrohr und seine Verwendung in Oesterreich. (Wooden Pipe and its use in Austria.) Leopold Nossek. Oest. Ing. Arch. Ver. May 30, '24.
- Entsandungsanlagen ohne automatische und mit automatischer Sand und Geschiebeabfuhrung.* (Sand Removal Plants with and without Automatic Sand and Gravel Discharge.) M. Dufour. Oest. Ing. Arch. Ver. May 30, '24.

c. Pneumatics

3. Industrial Pneumatics

- An Experimental Study of Air Lift Pumps.* Clayton N. Ward. Eng. & Contr. June 11, '24.

C. Materials of Construction and General Processes

a. Lime, Cement, Mortar, Concrete, Brick, Bitumen, Timber, Gravel, etc.

- Selection of Sand and Gravel for Concrete in the Pittsburgh District.* C. M. Reppert. Engr.'s Soc. W. Pa. Mar., '24.
- Ground Firebrick for Furnace Repair.* Joseph Harrington. Power June 17, '24.
- Tests Show How Damp-Sand Curing Improves Quality of Concrete.* F. D. Crook and Herbert Faulkner. Eng. N. R. June 19, '24.
- Zementprüfungsergebnisse im Stadtbauamt wien 1922/23.* (Cement Testing Results in the Vienna Municipal Building Department 1922/23.) Alex. Hasch. Oest. Ing. Arch. Ver. Mar. 7, '24.
- Reformbedürftigkeit der Betonvorschriften. (Need for Reform of the Regulations for Concrete.) Eduard Proksch. Oest. Ing. Arch. Ver. Apr. 4, '24.
- Der Gelenklose Bogen in Stempfbeton.* (The Rigid Arch in Rammed Concrete.) Eduard Proksch. Oest. Ing. Arch. Ver. May 2, '24.

b. Metals

- Resistance of Various Aluminum Alloys to Salt-Water Corrosion.* D. Basch and M. F. Sayre Mech. Eng. Apr., '24.
- Torsional Strength of Steel I-Sections.* C. R. Young and C. A. Hughes. Can. Engr. June 10, '24.
- Détermination industrielle de la limite élastique des aciers.* (Industrial Determination of the Elastic Limit of Steel.) Jean Durand. Gen. Civ. Mar. 1, '24.
- Essais au Cisaillement de Fils d'Aciers pour Câbles.* (Shearing Tests of Steel Wire for Ropes.) Gen. Civ. Apr. 5, '24.
- L'Alimentation de l'Acier Produite par la Traction.* (Magnetization of Steel Produced by Tension.) L. Fraichet. Gen. Civ. May 24, '24.
- Festigkeit und Materialprüfung.* (Strength and Testing of Materials.) P. Ludwik. Ver. deu. Ing. Mar. 8, '24.
- Die Fließgrenze des Eisens.* (The Limits of Flow of Iron.) A. Nádal. Schw. Bauz. Serial beginning Apr. 5, '24.
- Ueber die Entwicklung der Gusselensorten für die Maschinenbau.* (On the Evolution of Cast Irons for Machinery.) Hellmuth Koch. Schw. Bauz. May 31, '24.

c. Preservation and Use of Materials. Painting, Waterproofing

- Recent Observations Regarding the Corrosion, Cleansing, and Protection, of Aluminum.* H. A. Gardner. Mech. Eng. Apr., '24.
- Does Paint Preserve Wood.* H. D. Tiemann. Sci. Am. May, '24.

e. Earthwork. Cubage. Excavating Machinery

An Economic Study of Dragline Excavator Operation.* C. W. Ullom. Eng. N. R. May 29, '24.

Excavateur Bucyrus, a moteur à essence, et à chenilles.* (Bucyrus Excavator, with Gasoline Engine and with Caterpillars.) Gen. Civ. Mar. 22, '24.

f. Rock Excavation. Mining. Rock Removal

Abstracts of Institute Papers read before February Meeting. Min. & Metal. Mar., '24.

Abstracts of Institute Papers. Min. & Metal Apr., '24.

Abstracts of Institute Papers. Min. & Metal May, '24.

Les différentes types de câbles ronds en acier utilisés pour l'extraction dans les mines. (The Different Types of Round Steel Rope Used for Hoisting in Mines.) Gen. Civ. Mar. 1, '24.

Die Entwicklung des Schachtabteufens nach dem Gefrierverfahren in den letzten zwanzig Jahren.* (The Development of Shaft-Sinking by the Freezing Process During the Last Twenty Years.) Erlinghagen. Ver. deu. Ing. Apr. 19, '24.

g. Execution of Works. Specifications**2. Of Concrete**

Further Data on Benton Harbor Concrete Building Failure.* Eng. N. R. Apr. 3, '24.

Outdoor Swimming Pools.* Stanley Pinel. (From Bulletin Iowa State College.) Eng. & Contr. May 14, '24.

Construction of the Pershing Stadium.* H. P. Wilson. Mil. Engr. May-June, '24.

Constructing 1-Man Concrete Blocks without Forms.* Edwin A. Bethel. Eng. & Contr. June 11, '24.

3. Of Wood

Exemples de charpentes modernes en bois.* (Examples of Modern Framing in Wood.) F. Cretin. Gen. Civ. Mar. 15, '24.

h. Foundations

Bridge Spans Rolled 43 ft. Endwise to Place Them on New Piers.* Ry. Eng. & Main. Apr., '24.

Intake Tunnel Through New Orleans Levee in Sheetpile Cofferdam. Ralph H. Chambers. Eng. N. R. Apr. 3, '24.

Slim Pneumatic Caissons Penetrate Stone-Filled Crib.* C. S. Rindsfoos. Eng. N. R. May 20, '24.

j. Piles and Pile-Driving

Concrete Piles and Concrete Piling Construction.* Maxwell M. Upson. Engrs. Soc. West. Pa. Apr., '24.

Developments with Concrete Piling. J. W. Ludlow. (Paper read before Am. Assoc. of Port Auth.) Can. Engr. Apr. 15, '24.

An Unusual Method of Sinking Concrete Piles.* L. J. Sverdrup. (From Concrete.) Eng. & Contr. Apr. 23, '24.

Novel Sheet Pile Construction at New Orleans.* L. M. Arms. Ry. Age. Apr. 26, '24.

Concrete Piles Resist Action of Sea Water for Five Years.* Charles M. Spofford. Eng. N. R. May 1, '24.

Driving Piles for Hudson River Tunnel.* (From Compressed Air Magazine.) Can. Engr. May 6, '24.

Concrete Pile Trestle Highway Bridges in Texas. G. G. Wickline. (From paper read before Am. Assoc. State Highway Officials.) Eng. & Contr. June 4, '24.

k. Tunneling-Shields, Tunnels

The Camden Town Extension, London Electric Railways.* Engr. Mar. 14, '24.

Building a Small Submarine Oil Pipe Tunnel.* Eng. N. R. Apr. 3, '24.

The Ultimate Supporting Power and Pulling Resistance of Piles Placed Hydraulically.* R. P. V. Marquardsen. Eng. & Contr. Apr. 23, '24.

Building the Hudson River Vehicle Tunnel.* Eng. N. R. May 8, '24.

Der Bau des Radljevac-Tunnels.* (Construction of the Radljevac Tunnel.) Arthur Bleyer. Oest. Ing. Arch. Ver. May 2, '24.

x. Miscellaneous

Asphalt Floors for Shipping Rooms. Charles A. Mullen. (Paper read before Can. Pulp & Paper Assoc.) Can. Engr. Apr. 15, '24.

Novel Structural Details in Temple Building.* Eng. N. R. May 1, '24.

D. Highways**a. Location**

Super-Highway System Proposed for Detroit.* Eng. N. R. June 19, '24.

c. Construction

Tentative Conclusions on the Design of Concrete Highways.* Clifford Older. (Paper read before Am. Assoc. of State Highway Officials.) Mun. & Co. Eng. Mar., '24.

Resurfacing and Surfacing Treatments and When They Are Justified. William A. Van Duzer. Cornell C. E. Mar., '24.

Effect of Drainage on Public Safety.* George A. McCubbin. (From paper read before Conference on Road Construction.) Can. Engr. Mar. 25, '24.

Researches on the Structural Design of Highways by the United States Bureau of Public Roads.* A. T. Goldbeck. Am. Soc. C. E. Apr., '24.

- "Black Base" Highway Construction. George W. Craig. (Paper read before Engrs. Soc. Wisconsin.) Engrs. & Eng. Apr., '24.
- Present Status of Sheet Asphalt Mixture Design. M. F. McNaughton. (Paper read before Univ. of Mich.) Mun. & Co. Eng. Apr., '24.
- Economical Construction and Maintenance of Gravel Roads. John H. Mullen. (Paper read before Am. Assoc. of State Highway Officials.) Mun. & Co. Eng. Apr., '24.
- Construction of Highways Through Swamp Lands.* J. M. Fourmy. (Paper read before Am. Assoc. State Highway Officials.) Eng. & Contr. Apr. 2, '24.
- Single Track Concrete Highways. Allan M. Jackson. (Paper read before Conference on Road Construction.) Eng. & Contr. Apr. 2, '24.
- Can the Curing Period for Concrete Roads be Cut Down.* H. F. Clemmer. (From paper read before Am. Road Builders' Assoc.) Eng. N. R. Apr. 3, '24.
- Status of Design of Sheet Asphalt Mixtures. M. F. MacNaughton. (From paper read before Univ. of Mich.) Can. Engr. Apr. 8, '24.
- Roads for 1934—and After.* Walter Maughan. Inst. Mun. & Co. Engrs. Apr. 8, '24.
- New Design Expected to Cut Cost of Concrete Roads.* Eng. N. R. Apr. 10, '24.
- The Curing Period for Concrete Roads.* H. F. Clemmer. (Paper read before A. R. B. A.) Can. Engr. Apr. 22, '24.
- The Design and Construction of Asphalt Pavements. Prevost Hubbard. (Paper read before Highway Eng. Educ. Conference, Clemson College.) Mun. & Co. Eng. May, '24.
- Roughness as a Factor in Pavement Life.* A. T. Goldbeck. (Paper read before Am. Road Builders' Assoc.) Mun. & Co. Eng. May, '24.
- A Study of Crushing and Heaving of Concrete Pavement Bases.* Roy M. Green. Mun. & Co. Eng. May, '24.
- Results and Application of the Bates Road Tests.* Clifford Older. West Soc. Engrs. May, '24.
- Tentative Conclusions on Design of Concrete Surfaces.* Clifford Older. (Paper read before Am. Assoc. of State Highway Officials.) Eng. & Contr. May 7, '24.
- Widening and Spiraling Highway Curves.* J. Maughs Brown and R. V. Newcomb. Eng. & Contr. May 7, '24.
- Bituminous Surface Treatment and Bituminous Macadam. I. W. Patterson. (Paper read before Univ. of Mich.) Eng. & Contr. May 7, '24.
- Construction Methods on Wide Park-Road Paving.* LeRoy Dangremond. Eng. N. R. May 8, '24.
- Smoothness Surveys Urge Reforms in Road Design.* Harley Dunbar. Eng. N. R. May 15, '24.
- The Brick Paved Highways of Florida. C. A. Hogentogler. (From *Public Roads*.) Eng. & Contr. June 4, '24.
- Comparative Utility of Concrete Pavement Tests.* J. G. Bragg. Eng. N. R. June 12, '24.
- Les routes en béton de ciment.* (Concrete Roads.) Gen. Civ. Mar. 22, '24.
- Strassenbau in Oesterreich im 18 Jahrhundert.* (Highway Construction in Austria in the 18th Century.) Alfred Birk. Oest. Ing. Arch. Ver. May 16, '24.

d. Maintenance

- Limitations of Bituminous Surface Treatments and Bituminous Macadam Pavements Under Modern Traffic.* I. W. Patterson. (Paper read before Univ. of Mich.) Mun. & Co. Eng. Apr., '24.
- Methods of Maintaining Bituminous Roads.* E. A. James. (Paper read before meeting of Ontario Road Superintendents.) Eng. & Contr. Apr. 2, '24.
- Centralized Method of Maintaining County Highway System. Leroy C. Smith. (From paper read before Am. Road Builders' Assoc.) Eng. & Contr. Apr. 2, '24.
- Gravel Road Maintenance in Michigan. G. C. Dillman. (Paper read before Ontario Good Roads Assoc.) Can. Engr. Apr. 22, '24.
- The Maintenance of French Highways.* P. L. Focardi. Mil. Engr. May-June, '24.
- Causes of Cracks in Concrete Roads. H. P. H. Morgan. (From *The Surveyor*.) Can. Engr. May 20, '24.
- Stone Block Pavements in Dayton, Ohio.* Ivan E. Houk. Engr. May 30, '24.
- Arterial and Main Road Improvements in Kent.* H. T. Chapman. Inst. Mun. & Co. Engrs. June 3, '24.
- Wear of Concrete Pavements Tested at Arlington.* F. H. Jackson and J. T. Pauls. (Extract from report of Bureau of Public Roads.) Eng. N. R. June 5, '24.

h. Vehicles, Automobiles, Traffic

- Pedestrian Traffic.* Hugh E. Young. West Soc. Engrs. Mar., '24.
- Private Auto Traffic. Z. C. Elkins. West Soc. Engrs. Mar., '24.
- Second Story Sidewalks.* J. H. Sawyer. West Soc. Engrs. Mar., '24.
- Sidewalk Subways for Downtown Chicago.* T. L. Condon and C. L. Post. West Soc. Engrs. Mar., '24.
- Motor Bus Traffic in Chicago. J. A. Emery. West Soc. Engrs. Mar., '24.
- Classification and Causes of Highway Traffic Accidents. N. M. Isabella. (Paper read before Am. Road Builders' Assoc.) Mar., '24.
- Findings and Deductions from Highway Traffic Surveys.* J. Gordon McKay. (Abstract of paper read before Am. Road Builders' Assoc.) Eng. N. R. Mar. 27, '24.
- The Secondary Effect of Certain Important River Bridges on Local Transit Conditions.* John A. Miller. Am. Soc. C. E. Apr., '24.
- Traffic Regulation. John A. MacDonald. Cornell C. E. Apr., '24.
- Alleviation and Remedy of Street Congestion.* Harlan Bartholomew. (Paper read before Am. Elec. Ry. Assoc.) Eng. N. R. May 1, '24.
- Regional Highway Traffic Problem of New York City.* Ernest P. Goodrich and Harold M. Lewis. (Extracts from paper read before Conference on Traffic in New York.) Eng. N. R. May 29, '24.
- Standard Detour Marking System on Ohio State Roads.* G. F. Schlesinger. Eng. N. R. June 5, '24.

- Street Planning for Relief of Congestion at Bridges. Charles Wellford Leavitt. (Abstract of paper read before National Conference on City Planning.) Eng. N. R. June 5, '24.
 Les 2e et 3e Traversées du Sahara en Automobile.* (The 2d and 3d Crossings of the Sahara by Automobile.) G. Delanghe. Gen. Civ. Mar. 29, '24.
 Der unwältzende Einfluss des Automobils auf das Fuhrwesen der Stadt Wien.* (The Revolutionary Influence of the Automobile on the Traffic of the City of Vienna.) Richard Brabbee. Oest. Ing. Arch. Ver. Mar. 7, '24.
 Grosstadtverkehr.* (Traffic in Large Cities.) Kemman. Ver. deu. Ing. Mar. 15, '24.

x. Miscellaneous

- Grading Aggregates by Fineness Modulus Method.* C. D. Willett. Eng. N. R. June 12, '24.

E. Bridges, Viaducts, and Arches

b. Iron or Steel Bridges and Viaducts

- Construction of Gerrard Street Bridge.* J. S. Burgoyne and G. Alison. Can. Engr. June 3, '24.
 Erecting the Highest State Highway Bridge in Colorado.* H. T. Rano. (From Bulletin Colorado Soc. Engrs.) Eng. & Contr. June 4, '24.
 Erbreiterung der Brücken über die Linzerstrasse und die Schlossallee in km. 1.6/7 der Linie Wien-Salzburg für ein drittes und viertes Gleis.* (Widening the Bridges over Linzer Street and Schloss Avenue at k. m. 1.6/7 of the Vienna-Salzburg Line for a third and fourth Track.) Karl Linke. Oest. Ing. Arch. Ver. May 2, '24.

c. Stone Bridges and Viaducts

- Settlement of Piers Endangers Waterloo Bridge.* Eng. N. R. June 19, '24.

d. Concrete and Reinforced Concrete Bridges and Viaducts

- Development of Reinforced Concrete Bridge Design. A. E. Lindau. Ry. Rev. Mar. 29, '24.
 Analysis of the Stresses in the Ring of a Concrete Skew Arch. Discussion. Almon H. Fuller and Edward Godfrey. Am. Soc. C. E. Apr. '24.
 Governor's Bridge at Rosedale, Toronto.* F. G. Engholm. Can. Engr. Apr. 1, '24.
 Formulas for Elliptical Arches.* F. A. Smith. Eng. & Contr. Apr. 9, '24.
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 A Pre-Cast Ferro-Concrete Footbridge.* W. H. Shortt. (From The Railway Engr.) Eng. & Contr. May 21, '24.
 Construction Methods and Plant for Conneau Viaduct.* Eng. N. R. June 19, '24.
 Note sur la Reconstruction du Pont de la Citadelle à Lille.* (Note on the Rebuilding of the Bridge of the Citadel at Lille.) Wahl. Ann. P. et C. Jan., '24.
 Le viaduc en beton armé de Plougastel, sur l'estuaire de l'Elorn, près de Brest.* (The Plougastel Reinforced Concrete Viaduct over the Elorn Estuary, near Brest.) Gen. Civ. Mar. 8, '24.
 Les Nouveaux Ponts de Fribourg (Suisse). Le Pont de Pérolles et le Pont de Zahringen.* (The New Bridge of Fribourg, Switzerland. The Pérolles Bridge and the Zahringen Bridge.) Ch. Dantin. Gen. Civ. Apr. 5, '24.
 Le Pont Candeller. Pont-Rail en Beton Arme sur la Sambre.* (The Candeller Bridge, Reinforced Concrete Railroad Bridge over the Sambre.) R. Godfrenaux. Rev. Gen. May, '24.
 Aa-Brücke Rempen des Kraftwerks Wäggital.* (Rempen Aa Bridge of the Wäggital Power-Plant.) M. Ros. Schw. Bauz. May 24, '24.

f. Suspension Bridges. Transfer Bridges

- Towers of First Suspension Bridge Over Hudson River Bridge Completed.* Eng. N. R. Apr. 3, '24.
 Etude sur les Câbles, et Spécialement sur les Câbles de Pontes Suspendus.* (Study of Cables, Especially the Cables of Suspension Bridges.) G. Pigeaud. Gen. Civ. Apr. 12, '24.

g. Swing, Bascule, Lift, Floating, Oscillating Bridges, Travelling Cranes

- The New Brown Bascule Bridge.* Thomas E. Brown. West. Soc. Engrs. Apr., '24.
 American Bridge Type Bascule Bridge.* Albert Reichmann. West. Soc. Engrs. Apr., '24.
 Segmental Girder Construction As Applied to the Sherzer Rolling Lift Bridge.* C. P. Hazelet. West. Soc. Engrs. Apr., '24.
 The Rail Bascule Bridge.* Edward Hupt. West. Soc. Engrs. Apr., '24.
 The Vertical Lift Bridge.* J. A. L. Waddell. West. Soc. Engrs. May, '24.
 Grue Flottante Automotrice de 350 Tonnes.* (350 Ton Self-Propelled Floating Crane.) Gen. Civ. May 24, '24.

h. Computations, Tests, etc.

- Wind-Pressures, and Stresses Caused by the Wind on Bridges.* Douglas Henry Remfrey. Inst. C. E. 1922-'23 Pt. 2.
 Outstanding Problems in Highway Bridge Design. E. F. Kelley. (Paper read before Am. Road Builders Assoc.) Mun. & Co. Eng. Mar., '24.
 Reactions for a Particular Type of Unsymmetrical Arch: Discussion. Carl B. Andrews. Am. Soc. C. E. Apr., '24.
 Calcul de la poussée d'un arc sur ses appuis mobiles avec ou sans tirant.* (Calculation of the Thrust of an Arch on its Movable Bearings with or without Tie Rod.) G. Prudon. Gen. Civ. Mar. 1, '24.

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- Problems in Highway Bridge Design. E. F. Skelly. (Paper read before Am. Road Builders Assoc.) Can. Engr. Mar. 25, '24.
 The Secondary Effect of Certain Important River Bridges on Local Transit Conditions.* John A. Miller. Am. Soc. C. E. Apr., '24.

F. Inland Waters

a. Natural Waterways (General Articles)

Some Problems Connected with the Rivers and the Canals in Southern India.* Joseph Melville Lacey. Inst. C. E. 1922-'23 Pt. 2.

b. Canals (General Articles)

Der Plan eines Berliner Nordkanals.* (The Plan of a Berlin North Canal.) Herbst. Z. d. Bauver. Mar. 12, '24.
Neuere Erfahrungen bei Erdarbeiten und Duckerbauten. (New Methods for Earthwork and Siphon Building.) Goetzcke. Z. d. Bauver. Serial beginning Apr. 9, '24.

c. Regulation of Waterways—Volume of Discharge, Freshets, Floods, Soundings
Contribution a l'Etude de l'Amenagement des Rivieres.* (Contribution to the Study of River Control.) Henri Lang. Ann. P. et C. Mar., '24.

d. Diverting Dams

Foundation for an Ohio River Dam.* H. M. Trippe. Mil. Engr. May-June, '24.
Salt Water Climbs the Locks of the Panama Canal.* R. Z. Kirkpatrick. Eng. N. R. May 29, '24.
Note sur un Systeme de Vanne Pivotante pour le Remplissage et la Vidange des Sas d'Eccluses.* (Note on a Pivoted Gate System for Filling and Emptying Canal Lock Chambers.) Guerin. Ann. P. et C. Jan., '24.

g. Consolidation of Banks, Leakage, Maintenance of Channel, Dredging
Electric-Hydraulic Dredge Work on Illinois Levees.* Eng. N. R. May 29, '24.

i. Traction, Haulage, Towing, Mechanical Tractors

The Lagoon-Port of Venice.* Cav. F. Bastiani. Dock & Harbour Apr., '24.

j. River Equipment, Lake Ports

Le transbordement du charbon par bennes preneuses sur le canal du Rhin  Herne, dans le bassin de la Ruhr.* (The Unloading of Coal by Grab-Buckets, on the Rhine Canal at Hern. in the Ruhr Basin.) Gen. Civ. Mar. 1, '24.

k. Utilization of Inland Waterways, Freight, Capacity

The St. Lawrence River and Hudson Bay Projects.* W. Nelson Smith. Eng. Inst. Can. June, '24.
The Great Lakes-St. Lawrence Deep-Sea Route. Huge Navigational and Hydro-Electric plan recommended by the International Joint Commission.* Sci. Am. July, '24.

G. Maritime Works

a. Behaviour of Movements of the Ocean. Winds. Waves. Tides. Currents

The Relation of Current to Tide.* H. A. Marmer. Mil. Engr. May-June, '24.

b. Management and Protection of Coasts. Beaches Dunes

Beach Erosion: Its Causes and Cure: Discussion. Charles W. Staniford, Victor Gellineau, E. J. Dent, Merton C. Collins, Charles S. Rich, and Henry J. Sherman. Am. Soc. C. E. Apr., '24.
Ocean Beach Esplanade, San Francisco, California: Discussion. Charles T. Leeds. Am. Soc. C. E. Apr. '24.

c. Vessels and Maritime Navigation, etc.

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Results of Some Rolling Experiments on Ship Models.* M. P. Payne. Eng. Serial beginning June 6, '24.
Construction des Tours en Mer dans le Service des Phares et Balises.* (Construction of Towers in the Sea in the Lighthouse and Beacon Service.) M. G. de Rouville. Ann. P. et C. Serial beginning Jan., '24.
Leuchfeuer—und Signalanlagen nach dem A G A—System.* (Beacon and Signal Plants after the A. G. A. System.) Axel Mellin. Ver. deu. Ing. Apr. 5, '24.
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d. Roads and Outer Harbors. Dikes and Jetties. Breakwaters

The Johore Causeway.* Dock & Harbour Apr., '24.
Douglas Outer Works.* Dock & Harbour June, '24.

g. Dredges and Dredging. Force Pumps. Refloating and Removing Wrecks. Ice-Breakers
High-Lift Hydraulic Dredge Has Toothed Cutter Head.* V. J. Milkowski. Eng. N. R. June 12, '24.

h. Wharves. Mooring Buoys. Harbor Equipment

The King George V. Dock, London.* Asa Binns. Inst. C. E. 1922-'23 Pt. 2.
The Docks of Bremerhaven.* F. Claussen and Andressen. Dock & Harbour Apr., '24.
A Self-Propelled 350-Ton Floating Crane.* Engr. Apr. 11, '24.

- The Design of Quay Cranes.* F. M. Du Plat Taylor. Engr. May 30, '24.
 The Prevention of Damage to Structures by Shipping. Ernest Latham. Dock & Harbour June, '24.
 Trench Timbering for Quay Wall Construction.* J. W. Twinberrow. Dock & Harbour June, '24.
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I. Harbors (General Articles)

- Ancient Ports.* M. Du-Plat-Taylor. Dock & Harbour. Serial beginning Apr., '24.
 Works for the Improvement of Navigable Estuaries. Dock & Harbour May, '24.
 The Probable Effect on Ports of the Future Growth of Ships.* John H. Walsh. (Paper read before Soc. Naval Architects and Marine Engrs.) Dock & Harbour May, '24.
 Port Enterprise on the Gulf of Mexico.* H. J. Luhn. Dock & Harbour June, '24.
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J. Dockyard Machinery and Shipyards

- New Dry Dock and Ship-Repairing Yard at Swansea.* Engr. Serial beginning May 16, '24.
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 Gladstone Dock Works, Liverpool.* Dock & Harbour June, '24.
 The New Dry Dock at Havre.* Engr. June 13, '24.
 Etablissement d'une Cale Seche sur les Terrains du "Noorder-Ypolder" à Amsterdam.* (Establishment of a Drydock on the "Noorder-Ypolder" Grounds at Amsterdam.) J. Hache and R. Derycke. Ann. T. P. Belg. Apr., '24.

H. Railroads. Street and Interurban Railways. Automobiles. Aeronautics

a. Railroads

1. General Articles

- Steam Railroad Suburban Transportation in Chicago. F. E. Morrow and others. West. Soc. Engrs. Mar., '24.
 Wisconsin's New 10 000 Mile State Trunk Highway System.* J. T. Donaghey. Mun. & Co. Eng. Mar., '24.
 On the Earthquake Damage to the Japanese Government Railways.* Mitsuo Nawa. Int. Ry. Cong. Assoc. Mar., '24.
 What About the Patrons of an Abandoned Road.* Ry. Age May 3, '24.
 Alternate Route Solves Operating Problem.* Ry. Age May 10, '24.
 Union Pacific Loop Puts Boise, Idaho, on Main Line.* Eng. N. R. June 12, '24.
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 Le nouveau Régime des Chemins de fer Lombards.* (The New Administration of the Lombard Railroads.) Rev. Gen. Mar., '24.
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 Les Chemins de Fer de Bulgarie.* (The Railroads of Bulgaria.) M. L. Wiener. Rev. Gen. Serial beginning Apr., '24.
 Jugoslawische Anschussbahnen zur Adria. (Jugoslav Branch Road to the Adriatic). Oest. Ing. Arch. Ver. Apr. 4, '24.

3. Roadbed. Construction Work. Tunnels

- Replacing a Culvert by Tunneling.* F. H. Cramer. Ry. Eng. & Main. May 24, '24.
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 Is the Corrugated Iron Culvert Adapted to Railroad Use.* Walter S. Lacher. Ry. Eng. & Main. June, '24.
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4. Track

- Improving Methods of Treating Ties with Zinc Chloride.* J. D. MacLean. Ry. Eng. & Main. Apr., '24.
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5. Signals and Safety Apparatus

- Hand Brakes on Goods Trains.* E. Choquet. Int. Ry. Cong. Assoc. Mar., '24.
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- The Dispatching System, by Telephone, on the Belgian State Railways.* H. de Caestecker. Int. Ry. Cong. Assoc. May, '24.
- New Signals on Burlington Expedite Traffic.* Ry. Age May 24, '24.
- Spring Switches Reduce Delays on Santa Fé.* D. K. Crawford. Ry. Age May 31, '24.
6. Rolling Stock (Locomotives, Cars)
- Three-Cylinder Locomotive. George G. Jones. West. Ry. Club Mar., '24.
- New Ventilated Refrigerator Cars of the C. R. I. & P. Ry.* Ry. Rev. Mar. 15, '24.
- New Mikado Type Locomotives for the Wabash R. R.* Ry. Rev. Mar. 29, '24.
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- Construction of Gravel Wall Wells Solves Water Supply Problem.* C. R. Knowles. Ry. Eng. & Main. Apr., '24.
- Serviceability and Economics of 100% Locomotives.* West. Ry. Club Apr., '24.
- Simple Mallet Locomotives for the C. & O. Ry.* Ry. Rev. Apr. 5, '24.
- Simple Mallets for the Chesapeake & Ohio.* Ry. Age Apr. 12, '24.
- Motorized Light Service Rail Transportation. E. Wanamaker. Ry. Age Apr. 19, '24.
- Motorized Equipment on the Chicago Great Western.* E. J. Brennan. (From paper read before Soc. Automotive Engrs.) Ry. Age Apr. 19, '24.
- Automatic Cut-Off Control Tested in Service.* Ry. Age Apr. 26, '24.
- Observation Cars for the Union Pacific System.* Ry. Rev. Apr. 26, '24.
- Performance Tests of the Locomotive Booster.* M. H. Roberts. Ry. Rev. Apr. 26, '24.
- The Railroad Passenger Car Up-to-Date. C. E. Barba. (Abstract of paper read before N. E. Ry. Club.) Ry. Age May 3, '24.
- New 0-8-0 Heavy Switch Engines for Wabash Ry.* Ry. Rev. May 10, '24.
- New Equipment for Oriental Limited Trains.* Ry. Age May 31, '24.
- New Santa Fe Express Refrigerator Cars.* Ry. Rev. May 31, '24.
- New Pumping and Softening Plant is Electrical Throughout.* C. R. Knowles. Ry. Eng. & Main. June '24.
- A Constructive Study of Railroad Car Repairs.* Ry. Rev. June 7, '24.
- Motive Power of the Carolina Clinchfield & Ohio Ry.* Ry. Rev. June 7, '24.
- Reclamation of Air Brake Material.* A. Skinner. Ry. Rev. June 7, '24.
- Machining Driving Boxes, Shoes and Wedges.* Ry. Rev. June 7, '24.
- Increased Spring Capacity Freight Car Truck.* George S. Chiles. Ry. Rev. June 7, '24.
- Report on Front-Ends, Grates and Ashpans.* Edward C. Schmidt. Ry. Rev. June 7, '24.
- American Three-Cylinder Locomotives.* Engr. June 13, '24.
- Engineering and Business Considerations of the Locomotive.* W. H. Winterrowd. Ry. Rev. June 14, '24.
- Gasoline Passenger Car with Hydraulic Drive.* Ry. Age. June 14, '24.
- Performance of 3-Cylinder Locomotive No. 5000.* Ry. Rev. June 14, '24.
- Appareils pour rectifier les fusées, tourillons et contre-minivelles des essieux de locomotives.* (Apparatus for Adjusting the Journals, Cranks and Countercranks of Locomotive Axles.) M. Montillier. Gen. Civ. Mar. 22, '24.
- Remorques légères à Roues Orientables, pour Auto-Rails.* (Light Trailers with Flexible Wheels for Railroad Motor-Cars.) M. Montillier. Gen. Civ. Apr. 5, '24.
- Reparation des Tubes à Fumée par Soudure Electrique aux Ateliers de Sotteville-les-Rouen.* (Repair of Fire Tubes by Electric Welding at the Sotteville-les-Rouen Shops.) Renaud. Rev. Gen. May, '24.
- Zur Theorie der Diesellokomotive.* (On the Theory of the Diesel Locomotive.) G. Lomonosoff. Ver. deu. Ing. Mar. 1, '24.
- 1 E-Grossgüterzuglokomotiven der österreichischen Bundesbahnen.* (1 E Heavy Freight Locomotives of the Austrian Federal Roads.) J. Rihosek. Ver. deu. Ing. Mar. 8, '24.
- Eine neue Bauart für Reibungspuffer.* (A New Design for Friction Shock Absorbers.) C. Wetzel. Schw. Bauz. Mar. 15, '24.
- Ueber die Gestaltung der Einzelteile von Dampflokomotiven.* (On the Shape of the Separate Parts of Steam Locomotives.) Kurt Ewald. Ver. deu. Ing. Mar. 22, '24.
- Neuere Lokomotiven der Deutschen Reichsbahn.* (Recent Locomotives of the German State Railroad.) F. Melneke. Ver. deu. Ing. Mar. 22, '24.
- Zur Frage der Turbolokomotive. (On the Question of the Turbine Locomotive.) O. T. Post. Ver. deu. Ing. Mar. 29, '24.
- Die Wirkung der Wagenkipper auf die Güterwagen.* (The Effect of the Car-Dumper on Freight Cars.) Schulz. Ver. du. Ing. Apr. 19, '24.
- Die neuen eisernen Personenwagen für die Chilenische Staatsbahn.* (New Steel Passenger Cars for the Chilean State Railroad.) Strecker. Ver. deu. Ing. May 10, '24.
- Normung von Achsbuchsen mit Rollernlagern von Schienenfahrzeugen.* (Standards for Axle Boxes with Roller Bearings for Railroad Cars.) Oscar R. Wikander. Ver. deu. Ing. May 10, '24.
7. Use of Electricity
- The Future of Main-Line Electrification of British Railways.* H. E. O'Brien. (Abstract of paper read before Inst. of Elec. Engrs.) Eng. Apr. 4, '24.
- Main Line Railway Electrification.* Sir Philip Dawson and S. Parker Smith. Engr. Serial beginning June 6, '24.
- The Virginian Railway Electrification.* Homer K. Smith. Ry. Age. June 7, '24.
- New Electric Locomotives of the N. & W. Ry.* T. C. Wurts. Ry. Rev. June 7, '24.
- Locomotive Diesel électrique en service en Tunisie.* (Diesel Electric Locomotive in Service in Tunisia.) M. R. Deblize. Rev. Gen. Mar., '24.
- Les nouvelles locomotives électriques des Chemins de fer de l'Etat japonais.* (The New Electric Locomotives of the Japanese State Railroads.) Gen. Civ. Mar. 15, '24.
- Considérations sur L'Electrification des Chemins de fer.* (Considerations of the Electrification of Railroads.) Ernest Stassano. Gen. Civ. May 17, '24.
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- Elektrische Zugsförderung auf den österreichischen Bundesbahnen.* (Electric Train Operation on the Austrian Federal Roads.) Paul Dittes. Ver. deu. Ing. Mar. 8, '24.
- Ueber den gegenwärtigen Stand der Vollbahnelektrisierung unter besonderer Berücksichtigung der Arbeiten für die Elektrisierung der Oesterr. Bundesbahnen bis zu beginn des

- Jahres 1924.* (On the present state of Main Line Electrification with Special Regard to the Work for the Electrification of the Austrian Federal Railroads to the Beginning of 1924.) Paul Dittes. Oest. Ing. Arch. Ver. May 30, '24.
- 8. Stations, Engine Houses, Shops, Terminals**
- Pennsylvania Completes New Freight Station.* Ry. Age Apr. 5, '24.
- Unusually Quick Installation of Longer Turntable.* H. S. Clarke. Ry. Rev. Apr. 5, '24.
- C. B. & Q. Builds Modern Reclamation Plant.* Ry. Age Apr. 12, '24.
- Production Methods in British Freight Car Building.* D. R. Lamb. Ry. Rev. Apr. 19, '24.
- Pennsylvania Builds Modern Steel Car Shops.* Ry. Age May 3, '24.
- Burlington Stores Department at Havelock, Nebraska.* Ry. Rev. May 3, '24.
- Denver & Rio Grande Western Rebuilds Shops.* Ry. Age May 17, '24.
- Southern Pacific Lines Extending Repair Facilities.* Ry. Rev. May 17, '24.
- The Reading Company Opens New Terminal.* Ry. Rev. May 17, '24; Ry. Age May 24, '24.
- Fans to Avoid Smoke Nuisance in Chicago Union Station.* Eng. N. R. May 29, '24.
- Illinois Central Builds Modern Pumping Station.* C. R. Knowles. Ry. Age May 31, '24.
- Types of Turntable Developed for Heavier Locomotives.* Engr. N. R. June 5, '24.
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- How the Grand Rapids Shops were Modernized.* Ry. Age June 14, '24.
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- S. P. Houston Store has Many Fine Features.* Ry. Rev. June 14, '24.
- Les nouveaux Ateliers de Machines de la Compagnie Paris-Lyon-Méditerranée, à Nevers.* (The New Machine Shops of the Compagnie Paris-Lyon-Méditerranée, at Nevers.) M. Pouillon. Rev. Gen. Mar., '24.
- Les nouveaux Ateliers de Machines de la Compagnie Paris-Lyon-Méditerranée, à Nevers.* (New Machine Shops of the Paris-Lyons-Mediterranean Company at Nevers.) Gen. Civ. May 10, '24.
- b. Special Railroads**
- 2. Aerial Railroads**
- Use of Teleferica in the Italian Alps.* Earl E. Gesler. Mil. Engr. May-June, '24.
- d. Street Railways. Elevated Railways. Subways**
- 1. General Articles**
- Rapid Transit and Interurban Transportation for Chicago. Britton I. Budd. West. Soc. Engrs. May, '24.
- Surface Lines Transportation in Chicago.* Charles V. Weston. West. Soc. Engrs. Mar., '24.
- Grosstadtverkehr.* (Traffic in Large Cities.) Kemman. Ver. deu. Ing. Mar. 15, '24.
- 5. Rolling Stock**
- Les Ateliers de Reparations du Materiel Roulant des London Underground Railways, à Acton.* (The Rolling Stock Repair Shops of the London Underground Railways, at Acton.) Gen. Civ. May 10, '24.
- e. Automobiles**
- x. Miscellaneous**
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- Les 2e et 3e Traversées du Sahara en Automobile.* (The 2d and 3d Crossings of the Sahara by Automobile.) G. Delanghe. Gen. Civ. Mar. 29, '24.
- Aus der österreichischen Kraftfahrzeugindustrie.* (From the Austrian Automobile Industry.) J. Zoller. Ver. deu. Ing. Mar. 8, '24.
- f. Aeronautics**
- Civil Aviation.* W. Sefton Brancker. Eng. Inst. Can. May, '24.
- Méthode générale et abaque pour calculer les éléments du vol d'un avion.* (General Method and Chart for Calculating the Elements of the Flight of an Airship.) G. Delanghe. Gen. Civ. Mar. 8, '24.
- 2. Dirigible Balloons**
- Repairing the "Shenandoah". Replacing the Nose Cap and Rebuilding the Stabilizing Fin restore the Naval Dirigible.* Sci. Am. July, '24.
- 3. Aeroplanes**
- Night-Flying Equipment and Operation.* H. R. Harris and D. L. Bruner. Mech. Eng. May, '24.
- I. Municipal Water-Works. Agricultural Engineering**
- a. General Articles**
- The Works for the Augmentation of the Supply of Water to the City of Capetown, South Africa.* David Ernest Lloyd-Davies. Inst. C. E. 1922-'23, Pt. 2.
- The Improvement of the Water-Supply to the City of Hobart, Tasmania; and the Manufacture of Reinforced-Concrete Pipes by the Centrifugal Process.* John Clark Ross. Inst. C. E. 1922-'23, Pt. 2.
- Electric Light and Water Utilities for French Lick and West Baden, Indiana. Charles Brossman. (Paper read before Indiana San. and Water Supply Assoc.) Mun. & Co. Eng. Mar., '24.
- The Condition of the Minor Public Water Supplies in Iowa. H. V. Pedersen. Am. W. W. Assoc. Mar., '24.
- The Ames, Iowa, Water Supply. P. F. Hopkins. Am. W. W. Assoc. Mar., '24.
- Some Problems of Cedar Rapids Water Works. H. F. Blomquist. Am. W. W. Assoc. Mar., '24.
- Sanitation—Its Relation to Health and Life.* George C. Whipple. Am. Soc. C. E. Apr., '24.
- Operating Features of the Gary, Indiana, Water Works. William Luscombe. (Paper read before Indiana San. & Water Supply Assoc.) Mun. & Co. Eng. Apr., '24.

- The New Water Supply System of Memphis, Tenn.* F. G. Cunningham. (Paper read before Indiana San. and Water Supply Assoc.) Eng. & Contr. Apr. 9, '24.
 New Water Works System, Batiscan, Que.* Romeo Morrissette. Can. Engr. Apr. 15, '24.
 Progress Report of Committee No. 12 on Testing of Water Works Materials and Supplies. Am. W. W. Assoc. May, '24.
 Extension to Duncan Water Works System.* H. C. Mann. Can. Engr. May 13, '24.
 Water-Works Improvements at Wheeling, West Virginia.* J. F. Laboon. Eng. N. R. May 15, '24.
 Irrigation Pumping Machinery (Gezira Scheme), Sudan.* Richard W. Allen. (Paper read before Inst. Mech. Engrs.) Engr. May 16, '24.
 Bristol Waterworks: Cheddar Supply.* (Abstract of paper read before the Institution of Civil Engineers.) Alexander McCulloch Paterson. Engr. June 6, '24.

b. Hydrology—Water Resources

- Determining the Mean Precipitation on a Drainage Basin.* Robert E. Horton. N. E. W. W. Assoc. Mar., '24.
 The Waters of North Dakota.* A. E. McCoy. Am. W. W. Assoc. Mar., '24.
 The Value of Comprehensive Water Supply Investigations. Alex. Van Praag. Am. W. W. Assoc. Mar., '24.
 Periodic Fluctuations of Rainfall in Hawaii.* Discussion. Joel B. Cox. Am. Soc. C. E. Apr., '24.
 The Allocation of Water Supplies Derived from the Watersheds of Interstate Streams. Leonard P. Wood. Am. W. W. Assoc. May, '24.
 Progress Report of Committee No. 5 on Watershed Protection. Am. W. W. Assoc. May, '24.
 Spavinaw Water Supply Project for Tulsa, Oklahoma.* Eng. N. R. May 8, '24.
 Marshfield, Wis., Gets Well Supply After 25 Years Search. Eng. N. R. May 15, '24.
 Protection of Watershed of Beaver Dam. Christian L. Siebert. Eng. & Contr. June 11, '24.
 Sanitation on the Catskill Watersheds. (Paper read before Am. Water Works Assoc.) Thaddeus Merriman. Eng. & Contr. June 11, '24.
 Water Shed Protection at Altoona, Pa. J. Warren Fortenbaugh. Eng. & Contr. June 11, '24.

c. Dams and Reservoirs

- The Mazoe Irrigation-Dam.* Mark Randall. Inst. C. E. 1922-'23, Pt. 2.
 The Construction of Loch Raven Dam.* Wm. A. Megraw. Am. W. W. Assoc. Mar., '24.
 The Hartebeestpoort Dam.* Eng. Mar. 14, '24.
 The Hydraulic Design of the Shaft Spillway for the Davis Bridge Dam, and Hydraulic Tests on Working Models: Discussion H. B. Muckleston, H. J. F. Gourley, and B. F. Jakobsen. Am. Soc. C. E. Apr., '24.
 How a River Control District is Building Its Reservoir.* E. S. Cullings. Eng. N. R. May 1, '24.
 Arching Not Effective in Slightly Arched Gravity Dams.* B. F. Jakobsen. Eng. N. R. June 12, '24.
 Wichita Dam. Completion of Another Big Western Irrigation Project.* Sci. Am. July, '24.
 La construction des barrages de grande hauteur résistant par leur propre poids.* (The Construction of Dams of Great Height Resisting by Their Own Weight.) A. Dumas. Gen. Civ. Mar. 8, '24.
 La Rupture du Barrage à Voutes Multiples sur le Gleno (Lombardie)* (The Failure of the Multiple-Arch Dam on the Gleno, Lombardy.) Ch. Dantin. Gen. Civ. Apr. 12, '24.
 Les Grands Barrages-Réservoirs Italiens de Construction Récente ou en Construction.* (Large Italian Reservoir Dams of Recent Construction or Under Construction.) Gen. Civ. May 17, '24.
 Les Conditions de Sécurité des Barrages Massifs.* (Safety Conditions of Massive Dams.) Charles Rabut. Gen. Civ. May 24, '24.
 Neue französische Instruktion zum Bau hoher Talsperren als Gewichtsmauern.* (New French Instructions for the Construction of High Reservoir Dams as Gravity Walls.) A. Zeerleder. Schw. Bauz. Apr. 19, '24.
 Ueber ein Verfahren zur Dimensionierung von Gewicht-Staumauern.* (On the Method for Dimensioning Gravity Dam Walls.) W. Klenast-Curtl. Schw. Bauz. May 17, '24.

d. Analysis and Purification of Water

- Laboratory Control in Water Purification. Jack J. Hinman. (Paper read before Indiana Sanitary and Water Supply Assoc.) Mun. & Co. Eng. Mar., '24.
 Sand-Bed Studies at Montebello Water Filters, Baltimore.* John R. Baylis. Eng. N. R. Mar., '24.
 The Dry Feed of Chemicals. L. M. Booth. Am. W. W. Assoc. Mar., '24.
 Copper Sulphate Treatment of Cape Pond, The Source of Water Supply for Rockport, Mass.* E. Sherman Chase. N. E. W. W. Assoc. Mar., '24.
 Latest Developments in Chlorine Control Apparatus for Sterilization of Water Supplies.* Gilbert H. Pratt. N. E. W. W. Assoc. Mar., '24.
 Further Studies of Water Purification by Filters Charged with Aluminum or Ferric Hydroxide.* H. W. Clark. N. E. W. W. Assoc. Mar., '24.
 Colon-Aerogenes Differentiation at Cincinnati.* Clarence Bahlman and Henry Sohn. Am. W. W. Assoc. Mar., '24.
 The Use of Chlorine to Assist Coagulation.* Robert S. Weston. Am. W. W. Assoc. Mar., '24.
 Recarbonization of Softened Water.* Nicholas S. Hill. Am. W. W. Assoc. Mar., '24.
 Progress Report of Committee No. 18 on Filter Sand Analysis.* Am. W. W. Assoc. May, '24.
 Hydrogen-Ion Concentration and Soluble Aluminium.* William D. Hatfield. Am. W. W. Assoc. May, '24.
 Progress Report of Agencies for the Control of Pollution by Industrial Wastes. Am. W. W. Assoc. May, '24.
 Some Water Treatment Problems in Ontario.* A. V. Delaporte. Am. W. W. Assoc. May, '24.
 The Hydrogen Ion Concentration of Lime Treated Water and Its Effect on Bacteria of the Colon-Typhoid Group.* R. D. Scott and G. M. McClure. May, '24.

- Mixing Devices and Reaction Time.* Charles P. Hoover. Am. W. W. Assoc. May, '24.
 Study of Flocculation Phenomenon with Microscope.* John R. Baylis. Eng. N. R. May 1, '24.
 Laboratory Control in Water Purification. J. J. Hinman. Can. Engr. May 13, '24.
 Venturi Speed Controller for Dry Chemical Feed Devices.* E. S. Smith, Jr., and C. G. Richardson. Eng. N. R. May 15, '24.
 Water Station and Softening Plant, Clinton, Illinois.* C. R. Knowles. Ry. Rev. May 31, '24.
 An Investigation of the Pollution of the Colombo Harbour.* William Norman Rae. Inst. Mun. & Co. Engrs. June 3, '24.
 Method of Cleaning Filter Sand without Removal.* C. H. Cerpen. Eng. & Contr. June 11, '24.
 Observations on the Chlorination of Small Water Supplies.* (Paper read before Am. Water Works Assoc.) M. F. Tiernan. Eng. & Contr. June 11, '24.
 Sodium Iodide Treatment of Municipal Water Supply. (Paper read before Am. Water Works Assoc.) Beekman C. Little. Eng. & Contr. June 11, '24.
 Anweisung für die Flusssaufsehtsbeamten zur Feststellung der Verschmutzung der fließenden Gewässer durch Abwässer.* (Instructions for River Inspectors for the Determination of the Pollution of Flowing Streams by Sewage.) Flickert. Gesund. Ing. May 10, '24.

c. Distribution of Water

- An Irrigation Project of the Californias.* Sydney Lionel Rothery. Inst. C. E. 1922-'23, Pt. 2.
 Final Report of the Committee on Sanitary Drinking Fountains. Am. W. W. Assoc. Mar., '24.
 Selection of Auxiliaries for Steam-Operated Pumping Stations.* F. G. Cunningham. Am. W. W. Assoc. Mar., '24.
 Leakage and Unaccounted for Water.* J. N. Chester and E. E. Bankson. Am. W. W. Assoc. Mar., '24.
 Water Works Pumping Stations.* Charles B. Burdick. Am. W. W. Assoc. Mar., '24.
 Hose Coupling Standardization.* J. H. Howland. Can. Engr. Mar. 25, '24.
 Various Methods of Making Pipe Connections.* Robert W. Angus. Can. Engr. Apr. 1, '24.
 Results of Cleaning Water Mains at New Albany, Ind. J. O. Endries. (Paper read before Indiana San. & Water Supply Assoc.) Eng. & Contr. Apr. 9, '24.
 Semicircular Wood Flume with Radius of 6 Ft.* Eng. N. R. Apr. 10, '24.
 Development of Irrigation in Northwest Canada.* P. J. Jennings. Eng. N. R. Apr. 10, '24.
 Some Experiences with a Steam Turbine Driven Centrifugal Pump in the St. Louis Water Department.* Leonard A. Day. Am. W. W. Assoc. May, '24.
 Electric Pumpage at Kansas City, Missouri. Albert L. Maillard. Am. W. W. Assoc. May, '24.
 The Cleaning of Cast Iron Water Pipe Lines. Charles Haydock. Am. W. W. Assoc. May, '24.
 Effect of Distribution System Design Upon Fire Insurance Rates.* Louis Stockmeir. Am. W. W. Assoc. May, '24.
 Types of Pipe for Water Main Construction. S. B. Morris. Am. W. W. Assoc. May, '24.
 The Action of Water on Service Pipes. Wellington Donaldson. Am. W. W. Assoc. May, '24.
 Laying Large Water Main Through Swamps in New Orleans.* John T. Eastwood. Eng. N. R. May 15, '24.
 Additional City Pipe Conduits of the Catskill Aqueduct.* Walter E. Spear. Eng. N. R. May 15, '24.
 Discharge Measurements for the Control Section Weir.* J. L. Savage. Eng. N. R. May 15, '24.
 Welding Field Joints and Laying Riveted Steel Pipe.* George W. Pracy. Eng. N. R. May 15, '24.
 Construction of Concrete Lined Irrigation Canals.* W. E. Code. Eng. & Contr. June 11, '24.
 Underground Water Waste Detection in New York City. (Paper read before Munic. Engr. of City of New York.) Fred B. Nelson. Eng. & Contr. June 11, '24.
 L'Alimentation en Eau Potable des Villes des Flandres et du Littoral.* (Supplying Potable Water to the Cities of Flanders and the Coast.) M. Van Meenen. Ann. T. P. Beg. Apr., '24.
 L'Usine élévatrice à pompes Humphrey de Cobdogla (Australie du Sud).* (The Lifting Plant with Humphrey Pumps at Cobdogla, South Australia.) Gen. Civ. Apr. 5, '24.
 Die neuen Verbund-Pumpmaschinen des Hamburger Wasserwerks.* (The New Compound Pumping Engine of the Hamburg Waterworks.) Rud. Schröder. Ver. deu. Ing. Mar. 22, '24.

J. Sewerage. Sewage and Refuse Disposal

a. Sewers and Drains

- Main Drainage of the Southern Suburbs of the City of Capetown, South Africa.* Inst. C. E. 1922-'23 Pt. 2.
 Colombo Drainage-Works.* Richard Eustace Tickell. Inst. C. E. 1922-'23 Pt. 2.
 Segment-Block Tile Drain Construction. W. A. Olson. (Paper read before Iowa Eng. Soc.) Mun. & Co. Eng. Mar., '24.
 Relation of Sewer Trench Width to Load on Pipes.* George C. D. Lenth. Eng. N. R. Mar. 27, '24.
 The Distribution of Intense Rainfall and Some Other Factors in the Design of Storm-Water Drains: Discussion. Kenneth Allen, George T. Hammond, L. L. Tribus, William T. Lyle, Adolph F. Meyer, W. W. Horner and Allen Hazen. Am. Soc. C. E. Apr., '24.
 Reconstruction of Old Ditches Into Tile Drains. J. W. Dappert. (Paper read before National Drainage Council.) Eng. & Contr. Apr. 9, '24.
 Drainage of California Stadium Playing Field.* Walter W. Weir. Eng. N. R. Apr. 24, '24.
 Homeside District Sewers, Hamilton, Ont.* H. S. Philips and W. M. Johnston. Can. Engr. Apr. 29, '24.

b. Sewage Disposal. Purification

- Sewage-Disposal in South Africa, with Special Reference to Sludge-Treatment at Pretoria.* Frank Walton Jameson. Inst. C. E. 1922-'23 Pt. 2.

- Order Elimination. Almon L. Fales. Bost. Soc. C. E. Apr., '24.
 Separate Sludge-Digestion Sewage Plant.* L. R. Howson and H. P. Letton. Eng. N. R. Apr. 10, '24.
 Gas Production Variation. Imhoff Tank.* Willem Rudolfs and F. Leslie Campbell. Can. Engr. Apr. 15, '24.
 Rotherham: Sewage Disposal Works (Bioaeration System) and Central Highways Depot.* Vincent Turner. Inst. Mun. & Co. Engrs. Apr. 22, '24.
 Developments in Sludge Disposal.* John Haworth. (Paper read before Assoc. Mgrs. of Sewage Disposal Works.) Can. Engr. Apr. 29, '24.
 Sewage Treatment for the University Towns of Urbana and Champaign. C. R. Velzy. (Abstract of paper read before Illinois Soc. Engrs.) Eng. N. R. May 1, '24.
 Sludge Disposal by Digestion Process. John Watson. (Paper read before Assoc. Mgrs. of Sewage Works.) Can. Engr. May 6, '24.
 Four Activated-Sludge Plants in California.* C. E. Grunsky, Jr. Eng. N. R. May 29, '24.
 Birds and Sewage Disposal.* Leon Augustus Hausman. Sci. Am. June, '24.
 Chlorinated Overflow Storm Sewage to go into Water Reservoir. Eng. N. R. June 5, '24.
 Investigation of Biological Purification of Sewage. (Paper read before Am. Water Works Assoc.) Willem Rudolfs. Eng. & Contr. June 11, '24.
 Entwicklung der mechanischen Abwasserklärung in Deutschland.* (Development of Mechanical Water Clarification in Germany.) M. Kusch. Gesund. Ing. May 17, '24.

c. Refuse Disposal

- Indianapolis Developments in Garbage Reduction. E. W. McCullough. (Paper read before Indiana Eng. Soc.) Mun. & Co. Eng. Mar., '24.
 New Refuse Salvage Works at Birmingham.* Engr. Apr. 18, '24.
 Le nettolement de la Voirie de l'Après-Guerre.* (After-War Cleaning of the Highways.) V. Van Lint. Assoc. Ing. Gand. Pt. 1, '24.

x. Miscellaneous

- Sanitation—Its Relation to Health and Life.* George C. Whipple. Am. Soc. C. E. Apr., '24.

K. Heat Engines

a. Steam Engines. Boilers

- Maschinen und Herstellungsverfahren im Dampfkesselbau.* (Machines and Manufacturing Processes in Steam Boiler Construction.) F. Loch. Ver. deu. Ing. Mar. 1, '24.
 Erfahrungen und Forderungen des praktischen Kesselbetriebes.* (Practice and Requirements of Practical Boiler Operation.) M. Guilleaume. Ver. deu. Ing. Serial beginning Mar. 1, '24.

b. Steam Turbines

- 12 000-K.W. Steam Turbo-Generator at the British Empire Exhibition.* Eng. June 6, '24.
 Developments in Steam-Turbine Field.* E. H. Brown. Power June 17, '24.
 Testing Steam Turbine and Barometric Condenser.* Floyd S. Youtsey. Power June 17, '24.

c. Gas and Oil Engines

- A Sliding Cylinder Two-Cycle Double-Acting Marine Oil Engine.* Engr. Serial beginning Apr. 25, '24.
 The Solid-Injection Oil Engine.* H. F. Shepherd. Mech. Eng. May, '24.
 The Fraser and Chalmers Heavy Oil Engine.* Eng. June 6, '24.
 Ueber Dieselmotoren-Schmierfragen.* (On the Question of Diesel Engine Lubrication.) W. Ernest. Ver. deu. Ing. May 3, '24.

L. Electricity

b. Distribution and Transmission of Electricity

1. Power Plants
 The Cost of Hydro-Electric Power.* C. V. Christie. Eng. Inst. Can. Apr., '24.
 The Cahokia Power Station.* Engrs. & Eng. Apr., '24.
 Cahokia Station, Union Electric Light & Power Company, St. Louis, Mo.* Power Apr. 1, '24.
 The Largest Hydro-Electric Plant in the West Placed in Service.* Mun. & Co. Eng. May, '24.
 Construction Procedure for a Steam Power Station.* Eng. N. R. May 1, '24.
 New Power Plant on the Bryant Paper Co.* Power May 6, '24.
 Hudson Avenue-Brooklyn Edison's Super-Station.* Power May 13, '24.
 Recent Developments in Hydroelectric Equipment.* William Monroe White. A. I. E. E. June, '24.
 The North Tees Power Station.* Eng. Serial beginning June 13, '24.
 The North Tees Power Station.* Engr. June 13, '24.
 A Still Larger Power Plant.* Sci. Am. July, '24.
 Chaudières a Grande Capacité pour Centrales Electriques.* (High-Capacity Boilers for Central Stations.) Maurice Demoulin. Gen. Civ. May, '24.
 2. Long-Distance Transmission of Energy
 Transmission Line Stability. C. L. Fortescue. A. I. E. E. Apr., '24.
 Making High-Tension Cables.* Francis A. Westbrook. Sci. Am. May, '24.
 5. Transformers and Converters
 Reconnecting Direct-Current Armature—Fractional-Pitch Windings.* A. C. Roe. Power June 17, '24.

c. Electric Lighting

1. Arc, Incandescent, Mercury Vapor, Neon Lamps, etc.
 Some Notes on Street Lighting.* Preston S. Millar. A. I. E. E. June, '24.

L'Eclairage des Locaux Industriels et Commerciaux.* (Lighting of Industrial and Commercial Quarters.) J. Lynn. Gen. Civ. May 3, '24.

d. Mechanical Uses of Electricity

1. Electric Motors

Les Magnétos pour Moteurs à Explosion.* (Magnetos for Internal-Combustion Engines.) Fernand Collin. Gen. Civ. Serial beginning May 3, '24.

f. Signals and Communication

High Quality Transmission and Reproduction of Speech and Music.* W. H. Martin and H. Fletcher. A. I. E. E. Mar., '24.

Telephone Transformers.* W. L. Casper. A. I. E. E. Mar., '24.

Radio Telephone Signaling.* Charles S. Demarest and others. A. I. E. E. Mar., '24.

Carrier Telephony on Power Lines.* N. H. Slaughter and W. V. Wolfe. A. I. E. E. Apr., '24.

Underground Cable Practice in Europe.* D. W. Roper. West. Soc. Engrs., May, '24.

Les progrès de la radiotélégraphie. Les procédés modernes d'émission automatique et de réception enregistrée.* (The Progress of Radiotelegraphy. Modern Process of Automatic Sending and Recording Receiving.) Guy Malignon. Gen. Civ. Serial beginning Mar. 22, '24.

M. Architecture

a. Educational, Government and Scientific Buildings

Improved Structural Design in Large Canadian School Building.* (From *Contract Record and Engineering Review*.) Eng. & Contr. Mar. 26, '24.

b. Business and Commercial Buildings

Der Reichsbankneubau in Magdeburg.* (The New Reichsbank Building in Magdeburg.) Nitze. Z. d. Bauver. Apr. 30, '24.

c. Residences, Hotels

Large Concrete Flat Buildings Erected in Thirteen Weeks. Eng. N. R. Mar. 27, '24.

Architect and Engineer Unite in Design of Hotel. Grover H. Lippert. (Abstract of paper read before Eng. Soc. of Wisconsin.) Eng. N. R. May 8, '24.

Vorschläge zur Umstellung der Wohnungswirtschaft.* (Proposals for Changing the Economics of Housing.) Elkart. Zeit. Bau. Pt. 1, '24.

e. Hospitals and Asylums

Structure and Facilities of a Modern Hospital.* Arthur Peabody. Eng. N. R. Apr. 10, '24.

f. Factories and Mill Buildings

Layout and Design Factors in a Tobacco Stripping Plant.* Clifford C. Muhs. Eng. N. R. Apr. 24, '24.

g. Other Buildings

Wisconsin Theater Collapse Due to Faulty Work.* Eng. N. R. Apr. 24, '24.

Silobau der Vereinigten Walzmühlen Ludwig Polsterer in Enzersdorf a. d. Fischa.* (Silo Construction of the Vereinigte Walzmühlen Ludwig Polsterer at Enzersdorf a. d. Fischa.) Jos. Pfetschinger. Oest. Ing. Arch. Ver. May 16, '24.

h. Roofs, Domes

Analytical Solution of Masonry Domes.* David C. Coyle. Am. Soc. C. E. Apr., '24.

Types of Roof for Industrial Buildings.* W. F. Ballinger. Can. Engr. May 27, '24.

x. Miscellaneous

Kölner Bauprobleme.* (Cologne Building Problem.) H. Ritter. Zeit. Bau. Pt. 1, '24.

Die Bautätigkeit der Gemeinde Wien auf dem Gebiete des Hochbaues in den Jahren nach dem Kriege.* (Building Activity of the Community of Vienna in the Field of Tall Buildings During the Years Since the War.) Hans Hafner. Oest. Ing. Arch. Ver. Apr. 18, '24.

O. Administration. Legislation. Economics. Statistics

b. Economic Questions of a General Character; Valuations, etc.

The Relation of the Engineering Department to the Operating Department. F. J. Crollius. Engr.'s Soc. W. Pa. Mar., '24.

Pricing Quantities on a Unit Hour Basis. Eng. & Contr. Apr. 23, '24.

d. Administrative and Financial Management of Means of Communication

2. Routes and Roads

Cost Keeping System for County Roads. Alan K. Hay. (Paper read before conference on Road Construction.) Can. Engr. Apr. 8, '24.

Q. Surveying and Geodesy

Dumpy Levels. Robert C. Pantou. Inst. Mun. & Co. Engrs. Mar. 11, '24.

A Rural Surveyor's Task.* Frank Hewitt. Inst. Mun. & Co. Engrs. Mar. 11, '24.

New Features on an Indiana Townsite Subdivision.* Jacob L. Crane. Land. Arch. Apr., '24.

- Curve Problem Met in Land Surveying.* John T. Ransom. Can. Engr. Apr. 15, '24.
 A Simple Form for the Azimuth Equation.* L. B. Stewart. (Paper read before Ontario Land Surveyors' Assoc.) Can. Engr. Apr. 29, '24.
 Interpretation of Aerial Photographs.* Mark Brooke. Mil. Engr. May-June, '24.
 The Measurement of True Azimuths.* Edward M. Douglas. Mil. Engr. May-June, '24.
 The Evolution of the Nautical Chart.* E. Lester Jones. Mil. Engr. May-June, '24.
 Stability of Geodetic Benchmarks in United States. William Bowie. Eng. N. R. May 1, '24.
 Transmission Line Surveys and Field Engineering. Ole Davidson. Eng. N. R. May 8, '24.
 New Sounding Tube Devised for Hydrographic Surveying.* G. T. Rude. Eng. N. R. May 8, '24.
 Crop Reporting by Airplane. More Accurate and More Timely Crop Statistics by Means of the Aerial Camera and the Planimeter.* O. M. Kille. Sci. Am. July, '24.

R. Landscape Engineering

- The Plan for the Harvard University Botanic Garden.* Stephen F. Hamblin. Land. Arch. Apr., '24.
 Planting a Naturalistic Garden Theatre in a Limestone Region.* Hans. J. Koehler. Land. Arch. Apr., '24.
 Trees and Shrubs Suitable for Public Highways and Recreation Grounds. M. Agar. Inst. Mun. & Co. Engrs. Apr. 8, '24.

S. City Planning

- Relation of Transportation to the Chicago Plan.* Eugene S. Taylor. West. Soc. Engrs. Mar., '24.
 The Rotherham Regional Planning Scheme.* W. R. Davidge. Inst. Mun. & Co. Engrs. Mar. 11, '24.
 Planning a Municipal Program. P. F. Hopkins. (Paper read before Iowa Eng. Soc.) Mun. & Co. Eng. Apr., '24.
 Carrying Out Mariemont Plan for a Self-Contained Town.* Glenn Hall. Eng. N. R. Apr. 3, '24.
 Municipal Engineering Quantities. Harvey R. Sayer. Inst. Mun. & Co. Engrs. May 6, '24.
 Regional Town Planning. Herbert H. Humphries. Inst. Mun. & Co. Engrs. May 6, '24.
 Town-Planning and Civic Regeneration in Cork. J. F. Delany. Inst. Mun. & Co. Engrs. May 6, '24.
 Les Cités-jardins de la Compagnie du Chemin de fer du Nord.* (The Garden Cities of the Compagnie du Chemin de Fer du Nord.) Paul Calfas. Gen. Civ. Mar. 1, '24.

G. Administration, Legislation, Economics, Statistics

1. Economic Questions of a General Character. Valuations, etc.
 The Relation of the Engineering Department to the Operating Department. F. A. Gorton. Engr. N. R. Apr. 22, '24.
 Pricing Questions on a Rail Road. Engr. N. R. Apr. 22, '24.
 2. Administrative and Financial Management of Means of Communication
 3. Routes and Roads
 Road Revenue System for County Roads. Alan K. Hart. (Paper read before conference on Road Construction.) Can. Engr. Apr. 8, '24.
 4. Surveying and Geodesy
 Dumpy Level. Robert C. Panton. Inst. Mun. & Co. Engrs. May 11, '24.
 A Rural Surveyor's Task. Frank Hewitt. Inst. Mun. & Co. Engrs. May 11, '24.
 New Features on an Indiana Township Subdivision. Jacob L. Green. Land. Arch. Apr. 15, '24.

Employment Service

The Engineering Societies Employment Service is under the joint management of the National Societies of Civil, Mining, Mechanical, and Electrical Engineers as a co-operative Bureau available only to their membership, and maintained by the contributions from the Societies and their individual members who are directly benefited.

Men Available.—Under this heading, brief announcements will be published without charge. These announcements will not be repeated, except on request received after an interval of one month. Names and records will remain in the active files of the Bureau for a period of three months and are renewable on request. Notice for *Proceedings* should be addressed to Employment Service, 33 West 39th Street, New York, N. Y., and should be received prior to the first of the month.

Opportunities.—A Bulletin of engineering positions available is published weekly and is available to members of the Societies concerned at a subscription rate of \$3 per quarter, or \$10 per annum, payable in advance. Positions which are not filled promptly as a result of publication in the Bulletin, may be announced herein.

Voluntary Contributions.—Members obtaining positions through the medium of this Service are invited to co-operate with the Societies in the financing of the work by nominal contributions made within thirty days after placement, on the basis of \$10 for all positions paying a salary of \$2 000 or less per annum; \$10 plus 1% of all amounts in excess of \$2 000 per annum; temporary positions (of one month or less), 3% of total salary received. The income contributed by the members, together with the finances appropriated by the four Societies named, will be sufficient, it is hoped, not only to maintain but to increase and extend the service.

Replies to Announcements.—Replies to announcements published herein, or in the Bulletin, should be addressed to the key number indicated in each case, with a two-cent stamp attached for re-forwarding, and forwarded to the Employment Service at the address given. Replies received by the Bureau after the positions to which they refer have been filled, will not be forwarded.

MEN AVAILABLE

GRADUATE CIVIL ENGINEER. Assoc. M. Am. Soc. C. E.; age 35; married. Eleven years' experience technical and administrative positions. Work has covered statistical investigations and reports, employment administration, and superintendence of construction operations. For past four years resident engineer on building, water and sewerage construction work. At present, resident engineer on construction of \$225 000 sewerage system. Available on short notice. A-466.

CIVIL ENGINEER. Jun. Am. Soc. C. E.; graduate; twelve years' experience, steel, concrete, timber, railroad. A-2505.

CIVIL ENGINEER. M. Am. Soc. C. E.; single. Wide experience, city and railroad work, steam and electric, covering construction and maintenance, water supply,

sewerage, reinforced concrete, pier and harbor work, especially city pavements, traffic problems, highway location and construction. Twelve years' experience in Far East; three in Latin-America. Speaks Spanish. Location preferred, United States or Far East. A-5380.

STRUCTURAL ENGINEER. Jun. Am. Soc. C. E.; technical graduate; unmarried; age 27. Five years' broad experience designs and estimates for steam and hydro-electric power stations and industrial works. Desires position involving commercial as well as technical elements of engineering. B-4078.

HYDRAULIC AND ELECTRICAL ENGINEER. M. Am. Soc. C. E., specialty hydro-electric practice. Twenty-two years' active experience in mechanical, hydraulic, civil,

and electrical engineering, concrete and reinforced concrete, structural steel construction, estimating and contracting, efficient organizer of executive ability wishes to take charge of extensive project as designing resident, construction, or maintenance engineer, general superintendent, or manager. B-4760.

GRADUATE CIVIL AND SANITARY ENGINEER, Assoc. M. Am. Soc. C. E.; B. S. E. (C. E.) Univ. of Michigan 1918; completed business course, Alexander Hamilton Institute; married; age 29. One year municipal research, three years Engineering Bureau, Michigan Department of Health, two years Engineering Division, Sanitary Corps, and Camp Sanitary Engineer, U. S. Army. Some construction experience. B-5254.

CONSTRUCTION ENGINEER OR SUPERINTENDENT, Assoc. M. Am. Soc. C. E.; age 35; married. More than twelve years' experience in railroad construction and operation; also, hydraulic dam and powerhouse construction in the United States and tropical countries. Speaks Spanish and understands tropical labor and conditions. Has been railroad and marine superintendent for several fruit companies in charge of tropical divisions. B-5296.

ENGINEER EXECUTIVE, M. Am. Soc. C. E., A. S. M. E., A. I. M. and M. E., and Assoc. M. A. R. E. A.; Graduate C. E.; age 38. Good handler of men. Experienced in railroad work, building construction, development work, and industrial management. Although at present employed is desirous of making a change. Willing to go anywhere. Can furnish reference from all previous employers. B-5975.

DESIGNING AND CONSTRUCTION ENGINEER and College Professor, Assoc. M. Am. Soc. C. E.; B. S. in C. E.; age 34; married. Nine years, location and construction on railroad work. Two years, construction, ocean terminal and concrete grain elevator. Design large dam and powerhouse. Highway work. Four years' college instruction; present rank, assistant professor. At present, in charge design and construction cement plant and coal-grinding plant. Available about September. B-5989.

CIVIL ENGINEER, Jun. Am. Soc. C. E.; 1922 graduate; age 25. Desires position with structural or railroad company. Good mathematician and experienced draftsman. New York City or Eastern States preferred. B-6280.

HIGHWAY ENGINEER, Assoc. M. Am. Soc. C. E., experienced in construction and maintenance of all modern type pavements, desires permanent connection. Will go anywhere; highest type references will be submitted. B-6909.

ENGINEER EXECUTIVE, M. Am. Soc. C. E.; Graduate C. E.; married; age 40. Sixteen years' continuous responsible engineering and business experience covering structural, municipal, and highway work. Thirteen years designing and supervising engineer employing own staffs. Desires position as city engineer, manager, or with private organization as chief, executive, or district engineer. B-7009.

MEMBER, AM. SOC. C. E.; Chief Engineer and superintendent of construction. American; single; age 40; perfect health; capable and energetic. Twenty years' experience on railroad location and construction; bridge erection, piers, and foundations, in Latin-American countries. Speaks, reads and writes Spanish. Special course in reinforced concrete and steel design. Least salary \$3 600. Will go anywhere. Now available. B-7108.

CIVIL ENGINEER, M. Am. Soc. C. E.; graduate first-class engineering school, with two degrees. Twenty-five years' railway, municipal, and teaching experience; present head of engineering department in State school. Desires executive position where broad training may be used to advantage of both employee and employer. B-7521.

STRUCTURAL ENGINEER, M. Am. Soc. C. E.; graduate in mining and civil engineering. Specialty is building construction. Desires to connect with engineer, contractor, or architect as general assistant or field engineer. Can design, handle general business matters and office routine, or manage maintenance and construction work. Registered. Prefers work in South. B-7544.

GRADUATE CIVIL ENGINEER, Assoc. M. Am. Soc. C. E., desires connection with university. Two years' graduate work at leading university. Twelve years' varied civil engineering experience, both in practice and teaching. Used to responsibilities. Available this Fall. B-7678.

TEMPORARY POSITION desired by Civil Engineering Instructor, Assoc. M. Am. Soc. C. E. Available from July 14 to October 1. Nine years' experience in railroad and municipal work. Taking graduate work in sanitary engineering at present. B-7785.

ASSISTANT PROFESSOR OF CIVIL ENGINEERING, Assoc. M. Am. Soc. C. E. Three years' successful teaching experience, two years at leading university, one year at Polytechnic Institute. Ten years' varied experience in reinforced concrete and structural steel design, fabrication, and erection in responsible charge. Licensed engineer. Desires university appointment. B-7837.

CIVIL ENGINEER, Assoc. M. Am. Soc. C. E.; age 34; single. Fifteen years' experience; five years in location and construction of highways; two years in railroad valuation; three years in railroad and street railway location and construction; one year in plant and sewer construction; three years in stadia topography, section lines, and other surveys; one year in drainage work. Desires location in West or in foreign country. Would consider making change any time between now and October on two weeks' notice. B-7839.

ENGINEERING EXECUTIVE AND CONSTRUCTION MANAGER, Assoc. M. Am. Soc. C. E.; graduate Mass. Inst. Tech., 1910, in C. E.; age 39; married, one child. Fourteen years' varied experience, much of it on large engineering works. Has ability to deal successfully with clients and to plan and execute work efficiently. Desires

permanent location, preferably in North-eastern United States. Salary, \$4 000 up. B-7904.

GRADUATE CIVIL ENGINEER, 1923. Jun. Am. Soc. C. E. One year's experience on construction work doing surveying, computing, and drafting. Position of assistant to construction engineer desired. B-7933.

GRADUATE ENGINEER, Massachusetts Institute of Technology, University of Chile; Assoc. M. Am. Soc. C. E.; age 33; married; located at Santiago. Six years' experience on smelter construction, mill buildings, reinforced concrete sub-station buildings, turbo-generators foundations, and general engineering. Good organizing and executive ability. Knowledge of South American commercial market. Will represent American manufacturing companies or connect with American concern engaged in South American contracts. B-7978.

GRADUATE, Boston Tech., civil and administration engineering; Junior Am. Soc. C. E., M. A. R. E. A., and S. I. E.; age 31; single. Four years' experience bridges, buildings, railroad location. Good knowledge of English, French, Russian. Some Spanish, German. Previous military and foreign office service, now with railroad. Desires position with engineer, contractor, or railroad, designing or any field work. New York City preferred; would go abroad. B-8014.

PROFESSOR, Civil Engineering, now employed by Southern college; Assoc. M. Am. Soc. C. E. Total experience twelve years: Seven years on design and construction of hydraulic and sanitary work; five years teaching civil and sanitary subjects. Desires connection in north section of the Middle West, either teaching or with firm doing hydraulic, sanitary, and municipal work. Salary dependent on future opportunities. B-8132.

OIL AND GAS OFFICIAL; M. Am. Soc. C. E. Experience, eight years railroad field and office; five years assistant city engineer; five years private practice. Past seven years oil and gas executive in mid-continent and Western fields, in responsible confidential position for largest independent oil company. Expert on land and leases, titles, valuation, and operation. Responsible oil company or financial connection preferred. B-8134.

CIVIL-MECHANICAL ENGINEER; Assoc. M. Am. Soc. C. E.; graduate; age 37. Experienced power, hydraulic, and industrial

plant engineer; thorough executive and business training. B-8163.

CONSTRUCTION ENGINEER, General Superintendent and Executive; Assoc. M. Am. Soc. C. E.; Graduate Engineer, licensed State of Tennessee. Thirteen years highway construction as engineer, superintendent, and executive with both engineers and contractors specializing in concrete and bituminous road construction. Would be interested in connection with construction company alive to modern methods of construction and operation. Location secondary. B-8186.

RECENT GRADUATE IN CIVIL ENGINEERING, Student Member, Am. Soc. C. E.; age 22. Desires position in New York City or vicinity. B-8203.

CHIEF ENGINEER OR SUPERINTENDENT of Construction on high type paving of both city streets and interurban highways; M. Am. Soc. C. E. Twelve years' experience in responsible charge of construction. Now available, will consider any location. B-8270.

RECENT CIVIL ENGINEERING GRADUATE, Student Member, Am. Soc. C. E.; age 24. About three years' experience as follows: City surveying; topographic and hydrographic surveying; general construction. Also some experience in dredging. Desires position in the designing office of a steel company, or general construction. B-8304.

1924 GRADUATE in Civil Engineering, Student Member, Am. Soc. C. E.; interested in construction work where he can obtain experience. B-8307.

UNIVERSITY GRADUATE in Civil Engineering, Jun. Am. Soc. C. E.; age 27; married. Desires connection with a consulting engineer or contractor doing several kinds of work. Experience in preparation of plans and specifications for repairs to bridges and retaining walls, organizing or inspecting construction work, field surveying, and preparing estimates and cost analyses. Desires location in or near Philadelphia, Pa. Salary commensurate with conditions. B-8326.

GRADUATE CIVIL ENGINEER, Jun. Am. Soc. C. E.; age 27; single. Four years' experience as foreman and office man on power house, bridge, tunnel, and mine shaft construction. Desires position with construction company either in field or estimating department. Available August 15. B-8332.

Membership

(From April 2 to July 1, 1924)

Additions

| | Date of Membership. |
|---|--|
| ACEVEDO, Arturo. Asst. Prof. of Railways, Univ. of Buenos Aires, Callao 1045, Buenos Aires, Argentine Republic..... | Assoc. M. Jan. 14, 1924 |
| ADAMS, Thomas Caldwell. Drainage Asst. to Senior Drainage Engr., U. S. Dept. of Agriculture, 319 Federal Bldg., Salt Lake City, Utah..... | Jun. May 19, 1924 |
| ADSIT, Charles George. Vice-Pres. and Executive Engr., Georgia Railway & Power Co., 552 Elec. and Gas Bldg., Atlanta, Ga.. | M. May 19, 1924 |
| ALEXANDER, Henry James. In Chg., Div. of Maintenance and Valuations, Transit Comm., State of New York, 49 Lafayette St., New York, N. Y..... | Assoc. M. Mar. 7, 1906 M. June 16, 1924 |
| ALVAREZ y de Urrutia, Armando Manuel. Asst. Engr., Frederick Snaare Corporation (Res., Trinidad 24 Altos-Cerro), Havana, Cuba | Jun. Jan. 19, 1920 Assoc. M. May 19, 1924 |
| ARNOLD, Wayne Lynn. City Engr., 239 West Washington St., Jackson, Mich..... | Assoc. M. May 19, 1924 |
| AUSFAHL, Fred King. Asst. Chf. Engr., United Verde Copper Co., Box 386, Clarkdale, Ariz..... | M. June 16, 1924 |
| BALCOM, Louis West. Mgr., Eng. Branch, Texas Blue Print & Supply Co., 213 Littlefield Bldg., Austin, Tex..... | Assoc. M. April 7, 1924 |
| BEATTY, Robert. Junior Engr., Joint Comm. for Elimination of Toll Bridges over Delaware River, Room 204, State Office Bldg., Trenton, N. J. (Res., 2308 East York St., Philadelphia, Pa.) | Jun. May 19, 1924 |
| BELL, James McKim. Care, The São Paulo Tramway, Light & Power Co., Ltd., São Paulo, Brazil..... | Assoc. M. April 7, 1924 |
| BERETTA, John Ward. 404 West French Pl., San Antonio, Tex. | Jun. Feb. 25, 1924 |
| BERGER, Frank Henry. Asst. Engr., New York State Bridge & Tunnel Comm. and New Jersey Interstate Bridge & Tunnel Comm., 6919 Nineteenth Ave., Brooklyn, N. Y..... | Assoc. M. May 19, 1924 Jun. July 6, 1920 Assoc. M. June 16, 1924 |
| BERNI, Albert Frederick. Constr. Engr., Hurley Mason Co., 925 Gasco Bldg., Portland, Ore..... | Jun. June 5, 1906 Assoc. M. Jan. 4, 1910 M. April 8, 1924 |
| BINGHAM, Clarence Armingier. City Mgr., City Hall, Lima, Ohio..... | M. April 8, 1924 |
| BISSET, Andrew Gustave. Lieut., C. E. C., U. S. N.; Officer in Chg. of Constr., U. S. Veterans Hospital, U. S. Veterans Hospital, St. Cloud, Minn..... | Assoc. M. May 19, 1924 M. May 19, 1924 |
| BLANCHARD, Arthur Douglas. 155 Spruce St., Bloomfield, N. J. | Assoc. M. May 19, 1924 |
| BLANPIED, Elisha Adolphus. Engr., Kansas City Bridge Co., Box 266, St. Charles, Mo..... | Assoc. M. May 19, 1924 |
| BOOTH, Louis Frederick. Material Man, The Foundation Co., 209 Washington St., New York, N. Y. (Res., 295 Verona Ave., Newark, N. J.)..... | Jun. Feb. 25, 1924 Assoc. M. Nov. 9, 1920 M. April 8, 1924 |
| BORQUIST, Erasmus Swan. Instr., Civ. Eng., Univ. of Utah (Res., 1181 South 10th St., East), Salt Lake City, Utah..... | Jun. Nov. 25, 1919 Assoc. M. May 19, 1924 |
| BORSTELMANN, Louis John. Field Engr., Portland Cement Assoc. Farmers Bank Bldg., Pittsburgh (Res., 238 Painter Ave., Greensburg), Pa..... | Assoc. M. Jan. 14, 1918 M. April 8, 1924 |
| BOSARD, Ralph. Constr. Engr., Morgan Eng. Co., 622 Goodwyn Inst., Memphis, Tenn..... | M. Nov. 26, 1923 |
| BOWERS, Gamble McAllister. Chf., Bureau of Surveys, Dept., Public Works, Room 314, City Hall, Richmond, Va..... | Jun. May 19, 1924 |
| BRADSHAW, George Watson. Asst. Prof. of Civ. Eng., Kansas Univ. (Res., 1130 Kentucky St.), Lawrence, Kans..... | Assoc. M. May 19, 1924 |
| BREST, Alexander. Asst. Prof. of Civ. Eng., Univ. of Florida, Box 655, Gainesville, Fla..... | Assoc. M. May 19, 1924 |
| BRIGGS, Chauncey Millar. Cons. Engr., 360 North Michigan Boulevard, Chicago, Ill..... | Assoc. M. May 19, 1924 |
| BROWN, Francis Leicester. Draftsman, George A. Just & Co., Vernon Ave., Long Island City (Res., 47 Van Sicken Ave., Brooklyn), N. Y..... | Jun. Feb. 25, 1924 Assoc. M. Jan. 7, 1913 M. April 8, 1924 |
| BROWN, Levant. Senior Highway Engr., U. S. Bureau of Public Roads, 9 Main St., Room 400, San Francisco, Calif..... | Assoc. M. June 7, 1893 M. April 8, 1924 |
| BROWN, Robert King. Supt. and Chf. Engr., S. L. & U. R. R. (Res., 30 I St.), Salt Lake City, Utah..... | Jun. May 19, 1924 |
| BRUHN, Elmer Franklin. Instr. in Civ. Eng., Colorado School of Mines, Box 301, Golden, Colo..... | Jun. June 16, 1924 |
| BULL, Charles Mayrant Rees. Engr. and Estimator, The Smith Co., Industrial Builders, Inc., Box 1428, Birmingham, Ala..... | Assoc. M. Feb. 25, 1924 |
| BULLARD, Edward Wesley. Chf. Engr., Ellington Miller Co., 417 South Dearborn St. (Res., 8101 Avalon Ave.), Chicago, Ill. | Assoc. M. May 19, 1924 |
| CAMERON, William Paul. (W. P. Cameron Eng. Co.), 701 Witherspoon Bldg. (Res., 3450 North 15th St.), Philadelphia, Pa..... | Assoc. M. May 19, 1924 |

| | Date of Membership. |
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| CAMLIN, Harold Andrew. Supt. of Constr., State Highway Dept., Box 145, Grant Park, Ill. | Assoc. M. May 19, 1924 |
| CAMPBELL, Charles Ingalls. Vice-Pres., Sprague & Nisely Constr. Co., Box 851, Casper, Wyo. | Affiliate May 19, 1924 |
| CAMPBELL, Lewis Park. Asst. State Highway Engr., 444 North 14th St., Salem, Ore. | M. April 7, 1924 |
| CHERRY, Alan Gordon. Hydr. Engr., Stone & Webster, Inc., Boston (Res., 49 Holyoke St., Atlantic), Mass. | Jun. Sept. 11, 1917 |
| CHU, Eugene Yu Chien. 541 West 124th St., New York, N. Y. | Assoc. M. Nov. 26, 1923 |
| CHURCH, Herbert Mathew. 427 East 3d St., Huntington, W. Va. | Jun. May 19, 1924 |
| CLARKE, Herbert Charles Oliver. 504 Insurance Bldg., Dallas, Tex. | Assoc. M. Oct. 15, 1923 |
| CLEVELAND, Ernest Albert. Cons. Engr. to Dept. of Lands, Parliament Bldg., Victoria, B. C., Canada. | Assoc. M. Jan. 14, 1924 |
| COHEN, Abraham Burton. Cons. Engr., 1 Madison Ave., New York, N. Y. | M. May 19, 1924 |
| COHEN, Jacob Xenab. Cons. Engr.; Designing Engr., Intercepting Sewer Board, 104 City Hall, Syracuse, N. Y. | Assoc. M. July 2, 1913 |
| COLBURN, Robert Talbot. Holliston, Mass. | M. April 8, 1924 |
| COLE, Enser William. City Engr. and Supt., Public Bldgs., City of Salisbury, 118 West Innes St., Salisbury, N. C. | Jun. Oct. 3, 1911 |
| CONKLIN, Russell Foster. 117 Washington St., Hempstead, N. Y. | Assoc. M. April 17, 1917 |
| COOK, Donald Moore. Prin. Asst. Engr., Spooner & Merrill, 425 Powers Theatre Bldg., Grand Rapids, Mich. | M. April 8, 1924 |
| COOPER, John Edward. Chf., Bureau of Accountings and Valuations, Transit Comm. of New York State, 350 Ocean Ave., Brooklyn, N. Y. | Jun. April 7, 1924 |
| CORNING, Leo Hiram. Deputy Engr. of Design, City Water Dept. (Res., 819 Eddy Rd.), Cleveland, Ohio. | Assoc. M. May 19, 1924 |
| COVARRUBIAS, Guillermo Anibal. Engr., Compania de Salitres de Antofagasta, Oficina Fco. Puelma, Carmen Alto, Chile. | Assoc. M. May 19, 1924 |
| COWLISHAW, Irvine Mills. Dist. Engr., Commonwealth Light-house Service, Brisbane, Queensland, Australia. | Assoc. M. April 7, 1924 |
| CRAIGHEAD, Philip Brooks. Contr. Engr., Shoemaker Bridge Co., 256 Broadway, New York (Res., 1315 Greene Ave., Brooklyn), N. Y. | Jun. Aug. 28, 1922 |
| CRANE, Ernest Buchanan. Prin. Asst. Engr., C. M. & St. P. Ry., 618 White Bldg., Seattle, Wash. | Assoc. M. April 7, 1924 |
| CREWS, George Edmond. 7900 Manchester, Maplewood, Mo. | M. Sept. 2, 1914 |
| CROUCH, Arthur Weir. Instrumentman, Tennessee Elec. Power Co., Box 21, Rock Island, Tenn. | M. April 8, 1924 |
| CRUMP, Jasper Trevillian. Engr., Arnold Co., Acca. 1002 Times-Dispatch Bldg. (Res., 2805 Hawes Ave.), Richmond, Va. | Jun. May 19, 1924 |
| DANNENBAUM, Joseph Bowman. Engr., Doullut & Williams Co., 3102 Travis St., Houston, Tex. | Jun. Feb. 25, 1924 |
| DAVE, Joseph. Engr. and Salesman, S. Sternberg & Co., Asheville, N. C. | Jun. Feb. 25, 1924 |
| DAVILA, Jorge Victor. Asst. San. Engr., Dept. of Health of Porto Rico, San Juan, Porto Rico. | Jun. May 19, 1924 |
| DAVIS, Dell Brownell. City Engr., City Hall, Richmond, Ind. | Jun. Jan. 14, 1924 |
| DEIMLING, James Flintham. Chf. Engr., M. C. R. R., 502 M. C. R. R. Terminal Bldg., Detroit, Mich. | Assoc. M. May 19, 1924 |
| DE LEUW, Charles Edmund. (Kelker, De Leuw & Co.), 111 West Washington St., Chicago, Ill. | M. April 7, 1924 |
| DE MENEZES, Godofredo Moraes. Engr., The Armeo International Corporation, Caixa Postal 19, Rio de Janeiro, Brazil. | Jun. Aug. 31, 1915 |
| DEVAUL, Willard Rogers. 193 Millbank Ave., Greenwich, Conn. | Assoc. M. June 16, 1919 |
| DODS, John Huntington. Asst. Chf. Engr. and Development Engr., Sinclair Refining Co., 648 Cherry St., Winnetka, Ill. | M. April 8, 1924 |
| DRYFOOSE, Earl Daniel. Asst. Bridge Engr., Illinois Highway Div., 320 Hagler Bldg., Springfield, Ill. | Jun. Feb. 25, 1924 |
| DUNN, Charles Putnam. Designing Engr., Portland Ry., Light & Power Co., 923 Elec. Bldg., Portland, Ore. | Jun. May 19, 1924 |
| EASTMAN, Albert Reyner. Draftsman, Stone & Webster, Inc., 147 Milk St., Boston (Res., 23 Naples Rd., Brookline), Mass. | Assoc. M. April 25, 1921 |
| EHLERS, Adolph Washington. 433 South Fremont Ave., Los Angeles, Calif. | M. April 8, 1924 |
| ELLEDGE, Everard Audrey. Draftsman and Office Engr., V. V. Long & Co., 1300 Colcord Bldg., Oklahoma, Okla. | Jun. Feb. 25, 1924 |
| ENGLISH, Joseph Edgar. Engr. of Streets (Res., 829 Edgewood Ave.), Trenton, N. J. | Jun. May 19, 1924 |
| ERICKSON, Roy John August. Junior Engr., Delaware River Joint Comm., 6247 Pine St., Philadelphia, Pa. | Assoc. M. Jan. 14, 1924 |
| ESCOTO, Carlos Jose. Supt., Frederick Snare Corporation (Res., Jesus Maria 115 Bajos), Havana, Cuba. | Jun. June 16, 1924 |
| ESTES, Lewis Alden. Branch Mgr., Truscon Steel Co., 241 East Ohio St., Indianapolis, Ind. | Assoc. M. April 7, 1924 |
| | Jun. June 30, 1911 |
| | Assoc. M. Jan. 14, 1918 |
| | M. April 8, 1924 |

| | Date of Membership. | |
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| EVANS, Henry Moore. Constr. and Designing Engr., Voelcker & Dixon, 500 Morgan Bldg., Wichita Falls, Tex. | Jun. | Nov. 26, 1923 |
| FALK, Mark Marlon. Structural Engr., Earle Russell, 747 South Hill St., Los Angeles, Calif. | Assoc. M. | Nov. 26, 1923 |
| FARWELL, Herbert Freeman. Draftsman, County Eng. Office, 88 Sycamore St., Roslindale, Mass. | Jun. | May 19, 1924 |
| FELD, Jacob. Designing Engr., D. B. Steinman, 25 Church St., New York (Res., 1077 East 12th St., Brooklyn), N. Y. | Jun. | June 19, 1922 |
| FISHER, James Clarence. Asst. to Head of Constr. Cost Dept., New York and New Jersey Bridge and Tunnel Comm., 1 Canal and West Sts., New York (Res., 24 Park Pl., Rockville Center), N. Y. | Assoc. M. | May 19, 1924 |
| FLYNN, Edmund Clarence. Asst. Prof., Iowa State Coll., 612 Burnett Ave., Ames, Iowa. | Jun. | Nov. 26, 1923 |
| FORSYTH, Joseph Robert. 2537 Bedford Ave., Brooklyn, N. Y. | Assoc. M. | April 7, 1924 |
| FOSTER, Glenn Adrian. Detailer, Am. Bridge Co., 504 Park Rd., Ambridge, Pa. | Assoc. M. | Jan. 14, 1924 |
| FRAZIER, Jay Floyd. Project Engr., McAlester, Okla. | Jun. | May 19, 1924 |
| FREEMAN, Vernon Marlon. Mgr., Farmers Irrig. Co., Thermal Belt Water Co., and Santa Paula Water Co.; also, Engr., Limoneira Co., Box 732, Santa Paula, Calif. | Assoc. M. | May 19, 1924 |
| FULTON, William James. Care, John Kanttrack, Bluffton, Minn. | Jun. | Aug. 9, 1920 |
| FUNDA, Fred Paul. Asst. Engr., Cuba R. R., Camaguey, Cuba. | Assoc. M. | April 7, 1924 |
| GALLAWAY, Albert Austin. Constr. Engr.; Mine Supt., R. D. No. 1, Bentleyville, Pa. | Assoc. M. | May 19, 1924 |
| GAUTHIER, Paul Gilles. Engr., Hydr.-Elec. Development, Quebec Development Co., St. Joseph d'Alma, Lake St. John, Que., Canada | M. | May 19, 1924 |
| GENTHON, René Marius. Asst. City Engr., 157 Second St., Clifton, N. J. | Jun. | Jan. 14, 1924 |
| GHELARDI, Anthony Francis. Archt. and Builder, River Edge, N. J. | Assoc. M. | Jan. 14, 1924 |
| GIFFORD, Porter William. Vice-Pres., List & Gifford Constr. Co., 611 North Texas Bldg., Dallas, Tex. | Jun. | May 19, 1924 |
| GILMAN, James Moseley. Structural Engr., C. M. & St. P. Ry., 618 White Bldg., Seattle, Wash. | Affiliate | April 7, 1924 |
| GILROY, Urban Burns. 1300 First National Bank Bldg., San Francisco, Calif. | Assoc. M. | Mar. 14, 1916 |
| GISIGER, Paul Edward. Care, Pennsylvania Water & Power Co., Lexington Bldg., Baltimore, Md. | M. | April 8, 1924 |
| GLASS, Martin Theodore. Estimator and Insp., S. S. Glassgold & Co., 3710 Market St., Philadelphia, Pa. | Jun. | May 19, 1924 |
| GLEIM, Charles Sailor. Res. Engr., New York and New Jersey Bridge & Tunnel Comms., Woolworth Bldg., New York, N. Y. (Res., 411 Prospect St., Westfield, N. J.) | Assoc. M. | May 19, 1924 |
| GLENTON, Frederico, Jr. Engr., Canadian & General Finance Co., Ltd., 357 Bay St., Toronto, Ont., Canada | Jun. | Jan. 14, 1924 |
| GOODRICH, Clinton Raymond. Commr. of Public Works, 44 Mann Bldg., Utica, N. Y. | Assoc. M. | Aug. 28, 1922 |
| GORDON, Saul Cantor. 167 First St., Troy, N. Y. | M. | June 16, 1924 |
| GORTON, Earl Douglas. Asst. Engr., M. of W., Virginia Railway & Power Co., 1109 Huntington Crescent, Norfolk, Va. | Jun. | Jan. 14, 1924 |
| GOULD, Richard Hartshorn. Prin. Asst. Engr., James H. Fuertes, 140 Nassau St., Room 801, New York, N. Y. | Jun. | May 19, 1924 |
| GURTLE, William August. Care, J. O. Heyworth, Royalton, Minn. | Assoc. M. | July 6, 1920 |
| HALE, John Flotron. City Engr., 820 Harvard Boulevard, Dayton, Ohio | M. | June 16, 1924 |
| HALL, Wilfred McGregor. Erecting Engr., The U. G. I. Contr. Co., Croghan, N. Y. | Jun. | Nov. 26, 1923 |
| HAMMACK, James Albert. Project Engr., State Road Dept., Box 522, Vero, Fla. | Jun. | Nov. 26, 1923 |
| HARPER, Earle Gene. Lieut., A. S., U. S. A., Camp Nichols, Rizal, Philippine Islands. | Jun. | Nov. 26, 1923 |
| HARVEY, Alfred Ernest. Chf. Engr. and Supt. of Way and Structures, Kansas City Rys., 1500 Grand Ave., Kansas City, Mo. | Assoc. M. | Feb. 25, 1924 |
| HAWORTH, Harry Sloan. Reinforced Concrete Designer, Concrete Eng. Co., Inc., 1926 South 52d Ave., Chicago, Ill. | M. | April 7, 1924 |
| HAYDEN, Jackson Blvd. Pres., J. B. Hayden, Inc., Nutley, N. J. | Jun. | Jan. 14, 1924 |
| HEFFELFINGER, John Milton, Jr. Senior Asst. San. Engr., Dept. of Public Service, City Hall (Res., 1532 East 31st St.), Cleveland, Ohio | Jun. | May 19, 1924 |
| HENDERER, Irving Vance. Contr. Engr., Nashville Bridge Co., Nashville, Tenn. | Jun. | June 23, 1916 |
| HENDRY, James Horace. Chf. Asst., Hartford Elec. Light Co., 85 Williams St., Hartford, Conn. | Assoc. M. | Nov. 25, 1919 |
| HERBERT, John Ray. Min. Engr., Box 131, Kittanning, Pa. | M. | April 8, 1924 |
| HERBERT, Thomas Rice, Jr. Mgr., New York Branch, Consolidated Metal Co., 537 West 35th St., New York (Res., 1742 East 7th St., Brooklyn, N. Y.) | Assoc. M. | April 7, 1924 |
| | Jun. | April 3, 1922 |
| | Assoc. M. | April 7, 1924 |
| | Assoc. M. | Nov. 26, 1913 |
| | M. | April 8, 1924 |
| | Affiliate | May 19, 1924 |

| | Date of Membership. |
|---|---|
| HESS, Irving Cheney. Engr., Pacific Palisades Assoc., Palisades Station, Los Angeles, Calif..... | Assoc. M. May 19, 1924 |
| HIGGINSON, Clarence Hugh. Gen. Outside Supt., William Higginson, 15 Park Row, New York, N. Y..... | Assoc. M. May 19, 1924 |
| HILL, Roy Nathan. Ranch Mgr., Hillside Water Co. and Cain Irrig. Co., Bishop, Calif..... | Assoc. M. May 19, 1924 |
| HOFFMAN, William Henry. Pres. and Treas., The Structural Eng. Co., 401 First National Bank Bldg., Canton, Ohio..... | M. May 19, 1924 |
| HOLMES, William Henry. Asst. Engr., Modesto Irrig. Dist., 413 Hackberry, Modesto, Calif..... | Assoc. M. May 19, 1924 |
| HOPKINS, Charles Harold. Woodland, Calif..... | Assoc. M. April 7, 1924 |
| HOPSON, William Hall. Secy., Chf. Engr. and Gen. Supt., I. H. Meyer, Inc., 590 Sterling Pl., Brooklyn, N. Y..... | Assoc. M. May 19, 1924 |
| HORNE, Ralph Warren. Cons. Engr. (Fay, Spofford & Thorndike), 200 Devonshire St., Boston, Mass..... | Assoc. M. Sept. 10, 1918 M. Jan. 14, 1924 |
| HORNE, Rolland Drew. With U. S. Coast and Geodetic Survey, Steamer <i>Lydonia</i> , Wilmington, N. C..... | Assoc. M. April 7, 1924 |
| HORNER, Oliver Howard. (Horner & Wyatt), 306 McMillen Bldg., Kansas City, Mo. (Res., 1918 North 17th St., Kansas City, Kans.) | Assoc. M. May 19, 1924 |
| HOUSEL, William Stuart. 16549 Woodward Ave., Detroit, Mich. | Jun. Feb. 25, 1924 |
| HOWARD, Samuel Benjamin. Res. Engr., Mees & Mees, Lenoir, N. C. | Assoc. M. May 19, 1924 |
| HOYT, Charles Royden. Structural Engr., South Park Board of Commrs., 57th St. and Cottage Grove Ave., Chicago, Ill..... | Assoc. M. April 7, 1924 |
| HULL, William Henry. Res. Engr., Merritt-Chapman & Scott Corporation, 292 Pequot Ave (Res., Farmington Ave.), New London, Conn..... | M. May 19, 1924 |
| HUNT, Edward Marshall. Commr. of Public Works and City Engr., 22 Beckett St., Portland, Me..... | M. May 19, 1924 |
| HUSSEY, Clarence Loring. State Bridge Engr. for Rhode Island; Engr., Washington Bridge Comm., 8-A State House, Providence (Res., 100 High Service Ave., North Providence), R. I..... | M. April 7, 1924 |
| HYATT, Edward, Jr. Deputy Chf., Div. of Water Rights, State Water Comm., 707 Forum Bldg., Sacramento, Calif..... | Assoc. M. Oct. 11, 1920 M. April 8, 1924 |
| JAMEYSON, Bruce. Structural Engr. for County Surv., Alameda County; Instr., Coll. of Civ. Eng., Univ. of California, Civ. Eng. Bldg., Campus, Univ. of California, Berkeley, Calif..... | Assoc. M. April 7, 1924 |
| JOHNSON, John Gunnar Amandus. Designer, Robinson & Steinman, 25 Church St., New York (Res., 151 St. Marks Ave., Brooklyn), N. Y..... | Jun. April 7, 1924 |
| JOHNSTON, Robert Smith. Engr. Physicist, U. S. Bureau of Standards (Res., 3604 McKinley St., N. W.), Washington, D. C..... | M. May 19, 1924 |
| KALES, William Robert. Chf. Engr., Whitehead & Kales Co., 1405 Dime Bank Bldg., Detroit, Mich..... | M. April 7, 1924 |
| KAPP, Clarence Ramsey. Project Engr., Dept. of Public Works, Rushville, Nebr..... | Jun. Aug. 28, 1922 Assoc. M. April 7, 1924 |
| KASS, Nathan Isidor. Asst. Engr., Nicholas S. Hill, Jr., 147-E West End Ave., Manhattan Beach, N. Y..... | Assoc. M. April 7, 1924 |
| KEHOE, Alfred Lawrence. With H. G. Balcom, 10 East 47th St., New York, N. Y..... | Assoc. M. Oct. 10, 1919 M. June 16, 1924 |
| KESTLY, John Jerry. Asst. Engr., S. P. Co., Crescent, Ore..... | Assoc. M. Oct. 15, 1923 |
| KILLMER, Miles Israel. Res. Engr., New York and New Jersey Bridge and Tunnel Comm., Room 3112, Woolworth Bldg., New York, N. Y. (Res., 23 Harvard St., East Orange, N. J.) | Assoc. M. July 11, 1921 M. June 16, 1924 |
| KINDSVATER, Emil Fred. Instr. in Civ. Eng., Univ. of Kansas, Lawrence, Kans..... | Jun. May 19, 1924 |
| KNIGHT, Henry Clyde. Care, E. B. Sloan, Chf. Engr., F. C. S-P de M., Tepic, Nayarit, Mexico..... | Assoc. M. Nov. 26, 1923 |
| KRUG, Frank Stanley, Jr. Cons. Engr., Cincinnati Quarries Co., 3208 Observatory Rd., Cincinnati, Ohio..... | Assoc. M. Nov. 26, 1923 |
| LA DUE, Wendell Richard. Designing Engr., Bureau of Water Supply, City of Akron, 102 East Mill St. (Res., 376 University Pl.), Akron Ohio..... | Assoc. M. May 19, 1924 |
| LAUTERHAHN, Otto. Asst. Engr., U. S. Geological Survey, Water Resources Branch, State House (Res., 117 South Montgomery St.), Trenton, N. J..... | Jun. April 3, 1922 Assoc. M. June 16, 1924 |
| LAVINE, Ellis Lewis. 815 Riverside Drive, New York, N. Y..... | Jun. Feb. 25, 1924 |
| LAWRENCE, Fesler Emmett. City Mgr., City Hall, Sapulpa, Okla..... | Assoc. M. June 16, 1924 Jun. Feb. 25, 1924 |
| LIEBESKIND, Morris Moe. 215 East 103d St., New York, N. Y. | M. April 7, 1924 |
| LITTLE, Charles Edwin. Contr. Engr., 624 Pantages Bldg., Los Angeles, Calif..... | M. April 7, 1924 |
| LONDON, Jacob. Draftsman, D. B. Steinman, 25 Church St. (Res., 835 East 152d St.), New York, N. Y..... | Jun. Feb. 25, 1924 |
| LORENZ, Victor Sargent. 67 Westland Ave., Boston, Mass..... | Assoc. M. May 19, 1924 |
| LUCAS, William Robert. Care, Stae Highway Laboratory, Springfield, Ill..... | Jun. Jan. 14, 1924 |
| MACKENZIE, Douglas Carlyle. Draftsman, City Engr.'s Office, City Hall (Res., 2434 Mohawk St.), Pasadena, Calif..... | Jun. May 19, 1924 |

| | | Date of Membership. |
|--------------------------------|--|--|
| MACKIE, James Everett. | Structural Engr., City Engr.'s Office City Hall, Long Beach, Calif. | Jun. Nov. 26, 1923 |
| MACMILLAN, Edward Allen. | Supt. of Grounds and Bldgs., Princeton Univ., Princeton, N. J. | Assoc. M. May 19, 1924 |
| MCCLUSKEY, William Oliver, Jr. | Secy.-Treas., Consolidated Eng. Co., 1316 Water St., Wheeling, W. Va. | Assoc. M. May 15, 1917 M. April 8, 1924 |
| MCINTYRE, John. | Asst. State Highway Engr., State Highway Comm., Topeka, Kans. | Assoc. M. May 19, 1924 |
| MCKENZIE, Alexander Maxwell. | Engr., Detroit Aero Metals Co. (Res., 1404 Jefferson Ave., E.), Detroit, Mich. | Assoc. M. May 19, 1924 |
| MCMANUS, Eugene Joseph. | Res. Engr., State Highway Comm., Box 204, Brevard, N. C. | Jun. May 19, 1924 |
| MCMATH, Francis Charles. | Director, Canadian Bridge Co., Ltd., 1037 Iroquois Ave., Detroit, Mich. | M. Feb. 25, 1924 |
| MCQUISTON, Charles Fitch. | 5 Mousam St., Sanford, Me. (Res., 180 Broadway, Dobbs Ferry, N. Y.) | Jun. Feb. 25, 1924 |
| MASSEY, Walter Frederic. | Estimator, Frank N. Goble, Inc., 26 Robertson Ave., White Plains, N. Y. | Jun. Oct. 9, 1917 Assoc. M. Nov. 26, 1923 |
| MATHEWS, William James, Jr. | Civ. Engr., Santa Ana Sugar Co., Central Santa Ana, Auza, Oriente, Cuba. | Assoc. M. Feb. 25, 1924 |
| MATTER, Lawson Deacon. | Dist. Engr., Pennsylvania Dept. of Health, 396 Winola St., Kingston, Pa. | Assoc. M. June 10, 1924 |
| MERRILL, Walter Scott. | Asst. Hydr. Engr., Elec. Bond & Share Co., 71 Broadway, New York, N. Y. (Res., 376 Park Ave., Leonia, N. J.) | Assoc. M. Dec. 4, 1922 M. April 8, 1924 |
| MESSNER, Edward Grant. | Asst. to Res. Engr., C. S. Davis, 263 Fisk St., Pittsburgh, Pa. | Jun. April 7, 1924 |
| MEYER, Edward Dycker. | Room 524, Y. M. C. A., Denver, Colo. | Jun. May 19, 1924 |
| MILLER, John Lloyd. | Box 131, Helmetta, N. J. | Jun. May 19, 1924 |
| MIRABELLI, Eugene. | Instr. in Civ. Eng., Mass. Inst. of Tech., Cambridge, Mass. | Assoc. M. April 7, 1924 |
| MONROE, Merrick Atherton. | Care, Delaval Separator Co., 165 Broadway, New York, N. Y. | Assoc. M. Oct. 15, 1923 |
| MOORE, Julius Teetzel. | Engr., Metal Products Co. (Res., 1320 Lee St.), Charleston, W. Va. | Jun. July 6, 1920 Assoc. M. June 16, 1924 |
| MORGAN, Henry Julius, Jr. | (Isbell & Morgan); County Surv., Wichita County, 709 City National Bank Bldg., Wichita Falls, Tex. | Assoc. M. Oct. 15, 1923 Assoc. M. Mar. 13, 1917 M. April 8, 1924 |
| MORIARTY, Clarence. | 13th Floor, Equitable Bldg., Des Moines, Iowa. | Assoc. M. Nov. 27, 1917 M. June 16, 1924 |
| MORRISON, Gilbert. | Instr. in Chg. of Structural Design, Cooper Inst. of Technology, 31 Allison St., Yonkers, N. Y. | Assoc. M. Nov. 27, 1917 M. June 16, 1924 |
| MORTENSON, Ernest Dawson. | Structural Engr., McLaughlin & Burr, Boston (Res., 93 Beech Ave., Melrose), Mass. | Assoc. M. April 7, 1924 |
| MOSHER, Daniel Godfrey. | Chf. Draftsman and Designer, The Southern G. F. Co., 141 Sells Ave., Atlanta, Ga. | Assoc. M. May 19, 1924 |
| MOWER, Leland Monroe. | 970 Ordway St., Berkeley, Calif. | Jun. Sept. 12, 1921 Assoc. M. May 19, 1924 |
| MOWER, Lowell Kendall. | Instrumentman, Roxana Petroleum Corporation, Box 1263, Ponca City, Okla. | Jun. May 19, 1924 |
| MUELLER, Chester. | Transitman, Bureau of Docks (Res., 147 Pomona Ave.), Newark, N. J. | Jun. May 19, 1924 |
| MYERS, Jasper Moss. | Engr.-Builder, 24 Euclid Ave., Albany, N. Y. | Assoc. M. June 16, 1924 |
| NAGLER, Forrest. | Hydr. Engr., Allis Chalmers Mfg. Co., Milwaukee, Wis. | M. Feb. 25, 1924 |
| NELSON, Harry Merton. | Asst. Engr., International Paper Co., 117 Seaman Ave., New York, N. Y. | Assoc. M. May 19, 1924 |
| NEWLIN, John A. | With U. S. Forest Service, Forest Products Laboratory, Univ. of Wisconsin, Madison, Wis. | M. May 19, 1924 |
| NEWMAN, Arthur Hempstead. | Bridgehampton, N. Y. | Jun. Feb. 25, 1924 |
| NISSLY, Warren Balmer. | Supt. and Engr., Schuylkill Navigation Co., 906 North 5th St., Reading, Pa. | M. June 16, 1924 |
| OBLAN, Jacob Caleb. | Draftsman, D. B. Steinman, 25 Church St., New York (Res., 7 Beach 49th St., Edgemere), N. Y. | Jun. May 19, 1924 |
| OEHRLE, William. | Builder, 342 Madison Ave., New York, N. Y. | M. April 7, 1924 |
| O'HARA, Raymond Anthony. | Asst. Engr., Eng. Div., Plan of New York and Its Environs, 130 East 22d St. (Res., 2482 Valentine Ave.), New York, N. Y. | Jun. Aug. 28, 1922 Assoc. M. June 16, 1924 |
| ORMSBEE, Dan Wilt. | Care, Pan American Petroleum Co., 805 Spring Arcade Bldg., Los Angeles (Res., 333 Alcatraz Ave., Oakland), Calif. | Assoc. M. May 19, 1924 |
| O'ROURKE, George Martin. | Roadmaster, St. Louis Div., Ill. Cent. R. R., Carbondale, Ill. | M. May 19, 1924 |
| ORR, James Lawrence. | 302 West 22d St., New York, N. Y. | Assoc. M. Aug. 9, 1920 M. April 8, 1924 |
| OSPINA, Sebastian. | Cons. Engr. (Borrero & Ospina B), Call, Colombia | M. Feb. 25, 1924 |
| OUTZEN, Andrew Newton. | Field Supt., Detroit City Gas Co., Detroit, Mich. | Assoc. M. April 7, 1924 |

| | Date of Membership. |
|--|-------------------------|
| PARDEE, Robert McKnight. Eng. Salesman, 101 Marietta St., Atlanta, Ga. | Assoc. M. May 19, 1924 |
| PARKER, John Routt. 1225 Peden Ave., Houston, Tex. | Jun. Feb. 25, 1924 |
| PARNIS, Irwin Alexander. Reinforced Concrete Designer and Detailer, Truscon Steel Co., 2536 Kensington Ave., Philadelphia, Pa. | Jun. April 7, 1924 |
| PARRY, Charles Edward. Civ. Engr., 316 Glenside Ave., Glenside, Pa. | M. May 19, 1924 |
| PENMAN, Alan Carleton. Eng. Asst. and Secy., William S. Lee, 511 Fifth Ave., New York, N. Y. | Assoc. M. April 7, 1924 |
| PERRY, Aubrey Eugene. Watermaster, Dist. 5 of Oregon, and City Engr., Box 593, Pendleton, Ore. | Jun. Sept. 9, 1919 |
| PERRY, Horace Burr. Asst. Civ. Engr., Jackson & Moreland, 387 Washington St., Boston (Res. 41 Pond St., South Weymouth), Mass. | Assoc. M. April 7, 1924 |
| PETERMANN, Hans August. Civ. Engr., 222 Metropolitan Bldg., Milwaukee, Wis. | Assoc. M. June 16, 1924 |
| PHELPS, Tracy Irwin. Project Mgr., Ochoco Irrig. Dist., Prineville, Ore. | Assoc. M. May 19, 1924 |
| PICKELS, George Wellington. Asst. Prof., Civ. Eng., Univ. of Illinois (Res. 910 South Lincoln Ave.), Urbana, Ill. | Assoc. M. Oct. 29, 1912 |
| PICTON, Walter Lambuth. Civ. Engr., B. H. Klyce, 506 Fourth and First National Bank Bldg., Nashville, Tenn. | M. June 16, 1924 |
| PIERSOL, John Allison. Asst. Engr. and Res. Engr., San. Dist. of Indianapolis (Res. 2459 Ashland Ave.), Indianapolis, Ind. | M. May 19, 1924 |
| PODOLOFF, Nathan. Designing Engr., The Barrett Co., 40 Rector St., New York, N. Y. | Jun. Oct. 2, 1922 |
| POWELL, Alexander Chesley. Gen. Mgr., The Powell-Gaven Co. (Res. 623 Burroughs Ave.), Collinsville, Ill. | Assoc. M. April 7, 1924 |
| PRATT, Theodore Dudley. 38 Park Row, New York, N. Y. | Assoc. M. June 16, 1924 |
| RAISMAN, Aaron Israel. Div. Engr., Translt Comm., 49 Lafayette St., New York, N. Y. | M. April 7, 1924 |
| RAITT, John William. Asst. Engr., N. & W. Ry., Room 101, Terminal Bldg., Norfolk, Va. | M. April 7, 1924 |
| RANDOLPH, Jay. Director of Public Service and City Engr. (Res. 731 Pine St.), Boulder, Colo. | M. June 16, 1924 |
| RAWN, A. M. Engr., Bureau of Reclamation, U. S. Interior Dept., 305 Alvarado Terrace Apartments, Los Angeles, Calif. | M. May 19, 1924 |
| REED, Thomas Bernard. With U. S. Coast and Geodetic Survey, Washington, D. C. | Assoc. M. June 19, 1922 |
| REEVES, William Henry. Vice-Pres. and Gen. Mgr., Layne Southeastern Co. (Res. 385 Belvedere Ave.), Jacksonville, Fla. | M. April 8, 1924 |
| REICHEL, Victor Hugo. Asst. Engr., Office of Pres., Borough of Richmond (Res. 287 Wardwell Ave.), West New Brighton, N. Y. | Jun. April 7, 1924 |
| REILLY, Thomas Frank, Jr. 77 Albion Pl., Port. Richmond, N. Y. | Affiliate May 19, 1924 |
| RHODES, Chauncey Lewis. Div. Engr., State Highway Dept., Americus, Ga. | M. May 19, 1924 |
| RICHMOND, Allen Pierce, Jr. Asst. Prof. Civ. Eng., Thayer School of Civ. Eng. at Dartmouth Coll., Box 203, Hanover, N. H. | Jun. July 6, 1920 |
| RIDDICK, Wallace Carl. Dean, School of Eng., North Carolina State Coll. of Agriculture and Eng., State College Station, Raleigh, N. C. | Assoc. M. April 7, 1924 |
| RIDDLE, George Herman. Sales Engr., Bethlehem Steel Co., 1930 Penobscot Bldg., Detroit, Mich. | M. Feb. 25, 1924 |
| RIGHTS, Theodore Balfour. Draftsman, Erie R. R., 71 West 23d St., New York, N. Y. (Res. 444 Mercer Ave., Roselle, N. J.) | Assoc. M. April 7, 1924 |
| ROBY, Harrison George. Hydr. Engr., Byllesby Eng. & Management Corporation, 208 South La Salle St. (Res. 11142 South Irving Ave.), Chicago, Ill. | Jun. May 19, 1924 |
| ROONEY, William Francis. Fire Protection Engr., Johnson & Higgins, 49 Wall St., New York, N. Y. | Assoc. M. May 31, 1916 |
| ROTH, Samuel. 784 Beck St., New York, N. Y. | M. April 8, 1924 |
| RUFF, Charles Frederick. Supt., Water Dept., City of Long Beach, City Hall, Long Beach (Res. 52 Ibis St., Forest Hills), N. Y. | Jun. April 7, 1924 |
| RUGER, Raymond Philip. 6729 North Carlisle St., Philadelphia, Pa. | Jun. Nov. 26, 1923 |
| RUTTER, Josiah Baldwin. Chf. Engr., The Merrimac Chemical Co., 148 State St., Boston (Res. 10 Summit Ave., Wakefield), Mass. | Jun. Mar. 7, 1921 |
| SCHIRMER, Howard August. Structural Draftsman, Alameda County Surv.'s Office (Res. 1441 Fourteenth St.), Oakland, Calif. | Assoc. M. May 19, 1924 |
| SCHRACK, Harry Casper, Jr. Engr., Pennsylvania Steel Export Co., Venango and G Sts. (Res. 3024 West Girard Ave.), Philadelphia, Pa. | Jun. Jan. 14, 1924 |
| SCOTT, Frederick William. Care, A. Bremner, 253 Grove Hill Rd., Beverley, Yorkshire, England. | Assoc. M. April 7, 1924 |

| | | Date of Membership. |
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| SEBASTIAN, Walter. Asst. Engr., Chf. Engr.'s Office, P. & R. Ry. | M. | May 19, 1924 |
| 516 Reading Terminal, Philadelphia, Pa. | | |
| SHULTS, Clarence James. Engr. in Chg., Street Planning Div., | Assoc. M. | Jan. 14, 1924 |
| City Engr.'s Office (Res., 4343 North Griffin Ave.), Los | Jun. | May 19, 1924 |
| Angeles, Calif. | | |
| SIPPLES, Bernard Joseph. 151 Western Ave., Albany, N. Y. | Assoc. M. | June 16, 1924 |
| SKELTON, Albert Gordon. Res. Engr., Bridge Dept., Oregon State | | |
| Highway Comm., Box 405, Astoria, Ore. | Assoc. M. | May 28, 1923 |
| SLATTERY, Lawrence James. Care, Indian Refining Co., Law- | Jun. | May 19, 1924 |
| renceville, Ill. | | |
| SMITH, George Washington. Structural Draftsman, Trenton Plant, | Assoc. M. | April 7, 1924 |
| Am. Bridge Co. (Res., 26 Benton St.), Trenton, N. J. | | |
| SMITH, Irving Russell. Structural Designer, Public Service Pro- | Assoc. M. | May 19, 1924 |
| duction Co., Newark (Res., 64 New Lawn Ave., Arlington), N. J. | | |
| SMITH, William Henry. Gen. Contr. (William H. Smith Co.), | | |
| 708 Pontiac Bldg., St. Louis, Mo. | Assoc. M. | May 19, 1924 |
| SPELMAN, Howard Rodgers. Care, U. S. Forest Service, Albany, | Jun. | May 19, 1924 |
| Ore. | | |
| SPIEGEL, Jacob Birk. Hydr. Engr., U. S. Geological Survey, | Assoc. M. | April 7, 1924 |
| Ames, Iowa | | |
| SPIES, Herbert August. Chf. Engr., G. Lloyd Preacher & Co., | Assoc. M. | May 19, 1924 |
| Inc., 704 Healey Bldg., Atlanta, Ga. | | |
| SPURLING, Oliver Cromwell. Engr. of Plant, Western Elec. Co. | M. | May 19, 1924 |
| Inc., 195 Broadway, Room 1400, New York, N. Y. | | |
| SPURNEY, Felix Emanuel. Care, Turner Constr. Co., Cornell | Jun. | Nov. 26, 1923 |
| Stadium, Ithaca, N. Y. | Assoc. M. | Oct. 8, 1918 |
| SQUIRE, Edward Jacob. Asst. Prof., Civ. Eng., Polytechnic Inst. | M. | April 8, 1924 |
| of Brooklyn, 91 Woodruff Ave., Brooklyn, N. Y. | | |
| STARR, Charles Frederick. Chf. Engr., Genesee Bridge Co., Inc., | Assoc. M. | May 19, 1924 |
| 666 Plymouth Ave. (Res., 147 Penhurst Ave.), Rochester, N. Y. | | |
| STEMWELL, William Ignatius. Insp., Const. Engr.'s Dept., Com- | | |
| monwealth Edison Co., Chicago (Res., 706 South First Ave., | Jun. | Feb. 25, 1924 |
| Maywood), Ill. | | |
| STEPHENSON, Robert. Engr., Consuelo Estate, San Pedro de | Assoc. M. | May 19, 1924 |
| Macoris, Dominican Republic | | |
| STONE, George McCrary. Structural Engr. and Supt. of Constr., | M. | April 7, 1924 |
| E. T. Flaherty, 634 I. W. Hellman Bldg., Los Angeles, Calif. | Assoc. M. | Mar. 2, 1915 |
| STRATE, Thomas Henry. Engr. of Track Elev., C., M. & St. P. | M. | June 16, 1924 |
| Ry., 1215 Railway Exchange Bldg., Chicago, Ill. | Assoc. M. | Oct. 1, 1912 |
| STURDEVANT, James Hiram. Special Representative, The Bar- | M. | April 8, 1924 |
| rett Co., 154 Beverly Rd., Syracuse, N. Y. | | |
| SURVEYER, Arthur. Cons. Engr. (Arthur Surveyer & Co.), 511 | M. | May 19, 1924 |
| St. Catherine St., West, Montreal, Que., Canada | Assoc. M. | Feb. 25, 1924 |
| SWAN, Norman Augustus. Pembroke West, Bermuda | | |
| TAYLOR, Bill Northcutt. 207 South Center St., Longview, Tex. | Jun. | May 19, 1924 |
| TAYLOR, Frederic Charles. Care, Hoad, Decker, Shoecraft & | | |
| Drury, Ann Arbor, Mich. | Jun. | Feb. 25, 1924 |
| THOMAS, Harold Allen. Associate Prof., Civ. Eng., Carnegie Inst. | M. | April 7, 1924 |
| of Tech., 7405 Hutchinson Ave., Pittsburgh, Pa. | Jun. | Nov. 9, 1920 |
| THOMAS, Joseph Albert. Supt. of Shops and Car Houses, Manila | Assoc. M. | Feb. 25, 1924 |
| Elec. Co., Manila, Philippine Islands | | |
| THOMPSON, Joseph Trueman. Associate Prof., Civ. Eng., Johns | Assoc. M. | May 19, 1924 |
| Hopkins Univ. (Res., 3405 University Pl.), Baltimore, Md. | | |
| TINKHAM, Abel Stuart. Dist. Engr., Truscon Steel Co., 412 Bank | Jun. | April 7, 1924 |
| of Commerce Bldg., Providence, R. I. | | |
| TRUSCOTT, George Bate Edmund. Res. Engr., The Tata Eng. Co., | Assoc. M. | Feb. 25, 1924 |
| Ltd., Post Mulshi, Dist. Poona, India | | |
| URIBE, German, Jr. Chf. Engr., Ferrocarril de Antioquia, Medell- | M. | Jan. 14, 1924 |
| in, Colombia | | |
| VAN WAGENEN, James Hubert. Chf. Engr., International Boundary | Assoc. M. | April 1, 1914 |
| Comm., 205 New Jersey Ave., S. E. (Res., 2001 Sixteenth St., | M. | April 8, 1924 |
| N. W.), Washington, D. C. | | |
| VILLATUYA, Roberto Pedro. Care, Mead & Seastone, State Jour- | Jun. | April 7, 1924 |
| nal Bldg., Madison, Wis. | | |
| WAGNER, Frank. Draftsman, Pennsylvania State Highway Dept., | Assoc. M. | May 19, 1924 |
| Upper Darby (Res., 4607 Wayne Ave., Philadelphia), Pa. | | |
| WALLIS, Rolland Schanel. Prof., Eng. Extension Dept., Iowa State | M. | Feb. 25, 1924 |
| Coll., 619 Eighth St., Ames, Iowa | | |
| WANG, Chih-Han. Detailer, Am. Bridge Co., 2 South Clinton Ave., | Jun. | May 19, 1924 |
| Trenton, N. J. | Jun. | Nov. 25, 1919 |
| WATSON, Leon Heathman. Pres., Watson Eng. Co., 216 Profes- | Assoc. M. | Jan. 14, 1924 |
| sional Bldg., Miami, Fla. | | |
| WENTWORTH, John Prescott. Cons. Engr. (Metcalf & Eddy), 14 | M. | May 19, 1924 |
| Beacon St., Room 407, Boston, Mass. | Jun. | June 19, 1922 |
| WETHERBEE, Harlow Frank. Cons. Engr. (Bruce & Grupe), 710 | Assoc. M. | April 7, 1924 |
| Bankers Reserve Life Bldg., Omaha, Neb. | | |
| WHITE, Ambrose Harding. Chf. Engr., International Paper Co., | M. | May 19, 1924 |
| 100 East 42d St., Room 1910, New York, N. Y. | | |

| | Date of Membership. |
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| WICKERHAM, Philip Sheridan. Cons. Engr. for City of Butler and Comms. of Butler Township (Res., 170 Brady St.), Butler, Pa..... | Assoc. M. May 19, 1924 |
| WILCOX, Albert Louis. Cons. Engr., Northern Peru Min. & Smelt- ing Co., Casilla 162, Trujillo, Peru..... | Assoc. M. May 31, 1924 M. Feb. 25, 1924 |
| WILLIAMSON, Lee Hoomes. Civ. Engr., 510 National Bank Bldg., Charlottesville, Va..... | Jun. Oct. 9, 1917 Assoc. M. Oct. 14, 1919 M. April 8, 1924 |
| WINKLER, Edward Rudolph, Jr. 300 West 10th St., Tyrone, Pa. | Jun. Feb. 25, 1924 |
| WOOD, Vaughn. Constr. Engr., 422 Am. Bank Bldg., Los Angeles, Calif..... | Assoc. M. July 6, 1920 M. April 8, 1924 |
| WRIGHT, Kenneth Crawford. Res. Engr., Utah State Road Comm., Brigham City, Utah..... | Assoc. M. June 16, 1924 |
| WU, Erilian Ch'1 Yu. Asst. Engr., The Foundation Co., 120 Liberty St. (Res., St. Nicholas Ave., Apartment 11-D), New York, N. Y..... | Jun. Feb. 25, 1924 Jun. May 19, 1924 |
| WURTS, Charles Stewart, Jr. 926 Spruce St., Philadelphia, Pa... | |

Reinstatements

| MEMBERS | Date of Reinstatement. |
|-------------------------------|---------------------------|
| HAYDEN, Arthur Gunderson..... | June 16, 1924 |

| ASSOCIATE MEMBERS | |
|-----------------------------|---------------|
| GRIGSBY, Walter Berton..... | June 16, 1924 |

Resignations

| MEMBERS | Date of Resignation |
|------------------------------|------------------------|
| MACKALL, John Nathaniel..... | Dec. 31, 1923 |
| SHEIDLER, Paul King..... | May 19, 1924 |

| ASSOCIATE MEMBERS | |
|-----------------------------|--------------|
| BROOK-FOX, Evelyn..... | May 19, 1924 |
| McGINNIS, William Lynn..... | May 19, 1924 |
| UPTON, Joseph..... | May 19, 1924 |

JUNIORS

| | |
|-------------------------------|--------------|
| DARLING, Clinton Stowell..... | May 19, 1924 |
| STRAUS, Edgar Andrew..... | May 19, 1924 |

Deaths

| |
|---|
| BACON, James Hayward. Elected Member, January 3, 1900; died June 4, 1924. |
| BAKER, Charles Hinckley. Elected Member, June 4, 1902; date of death unknown. |
| BALDWIN, William James. Elected Member, September 5, 1888; died May 7, 1924. |
| BARRIL, Gulon Victor. Elected Member, July 11, 1921; died April 17, 1924. |
| BOOTHE, Frank Simmons. Elected Associate Member, April 19, 1920; died February 11, 1924. |
| BURNS, Clinton Sumner. Elected Associate Member, February 1, 1899; Member, January 3, 1905; died April 1, 1924. |
| BYLLESBY, Henry Marison. Elected Member, June 1, 1887; died May 1, 1924. |
| CARR, Albert. Elected Associate Member, March 2, 1892; Member, October 7, 1903; died June 18, 1924. |
| COLBY, Albert Ladd. Elected Member, October 7, 1903; died May 1, 1924. |
| CORTHELL, Arthur Bateman. Elected Member, March 1, 1899; died May 24, 1924. |
| CUSHING, Edward Benjamin. Elected Member, November 1, 1893; died February, 1924. |
| GILLETTE, Lewis Singer. Elected Member, June 7, 1899; died March 30, 1924. |
| HAMILTON, John Wilson. Elected Member, July 10, 1907; died April 16, 1924. |
| HEALY, John Paul. Elected Associate Member, December 6, 1910; died February 6, 1924. |
| HUNTER, Robert Easton. Elected Associate Member, November 6, 1901; died March, 1924. |
| JONES, Howard Murfree. Elected Member, June 1, 1909; died March 31, 1924. |

JUDSON, William Voorhees. Elected Member, November 4, 1896; died March 29, 1923.
 KERR, Frank Montgomery. Elected Member, October 2, 1901; died May 5, 1924.
 LAWRIE, James Albrow. Elected Member, March 12, 1918; died May 21, 1924.
 LEE, Alonzo Church. Elected Associate Member, June 23, 1916; died September 1, 1923.
 McNULTY, George Washington. Elected Member, May 5, 1880; died April 19, 1924.
 NOYES, Ellis Bradford. Elected Junior, July 7, 1880; Member, October 2, 1889; died May 31, 1924.
 OLBRICH, Emil Robert. Elected Associate Member, November 9, 1920; died May 25, 1924.
 SHANKLAND, Edward Clapp. Elected Member, February 5, 1890; died June 3, 1924.
 TAYLOR, James Townsend. Elected Member, January 3, 1894; died March 17, 1924.
 TOLLINGER, Edward Chandler. Elected Member, June 4, 1902; died June 18, 1924.
 WATTERS, George Lawrence. Elected Associate Member, April 30, 1912; date of death unknown.
 WEEKS, Gaylord D. Elected Associate Member, June 24, 1914; died May 6, 1924.
 WINFREE, Peyton Brown. Elected Junior, October 2, 1894; Associate Member, May 3, 1898; died May 9, 1924.
 WISE, Colin Reed. Elected Member, April 6, 1904; died May 19, 1924.
 WORK, Joe Young. Elected Associate Member, May 3, 1910; died May 30, 1924.

Total Membership of the Society, July 1, 1924

| | |
|-------------------------|-------|
| Members | 4 914 |
| Associate Members | 5 429 |

| | |
|-------------------------|--------|
| Corporate Members | 10 343 |
| Honorary Members | 13 |
| Juniors | 685 |
| Affiliates | 166 |
| Fellows | 8 |

| | |
|-------------|--------|
| Total | 11 215 |
|-------------|--------|

Deaths

BACON, James Hayward. Elected Member, January 2, 1901; died June 1, 1921.
 BAKER, Charles Hilditch. Elected Member, June 4, 1903; date of death unknown.
 BALDWIN, William James. Elected Member, September 5, 1901; died May 7, 1924.
 BARNETT, John Victor. Elected Member, July 11, 1921; died April 11, 1924.
 BLOOM, Frank Benjamin. Elected Associate Member, April 11, 1920; died February 11, 1924.
 BURKE, Charles Sumner. Elected Associate Member, February 2, 1899; died January 2, 1905.
 BYLHERRY, Henry Maynard. Elected Member, June 1, 1917; died May 1, 1924.
 CARR, Albert. Elected Associate Member, March 2, 1901; died December 7, 1901.
 COLBY, Alfred Todd. Elected Member, October 7, 1907; died May 1, 1924.
 CORNWELL, Arthur Harrison. Elected Member, March 1, 1900; died May 21, 1924.
 CUSHING, Edward Benjamin. Elected Member, November 1, 1901; died February 1902.
 GILLETTE, Lewis Roger. Elected Member, June 7, 1903; died March 19, 1904.
 HAMILTON, John Wilson. Elected Member, July 10, 1907; died April 16, 1921.
 HENRY, John Paul. Elected Associate Member, December 6, 1910; died February 6, 1924.
 HUNTER, John. Elected Associate Member, November 9, 1901; died March 19, 1924.
 JONES, Howard Matthew. Elected Member, June 1, 1909; died March 31, 1921.